An Address
ON
THE TREATMENT OF SPRAINS AND OF SOME FRACTURES.

Delivered before the Hampstead Medical Society

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GENTLEMEN,—These subjects are often surrounded with difficulty and, until the advent of the Roentgen rays, it was sometimes quite impossible to give a definite opinion as to the exact nature of the injury. In the text-books the treatment of a sprain is often spoken of very briefly, but if one were to judge by the frequency of the accident and the pain and trouble which it causes to all concerned the matter should merit greater preciseness and thoroughness in its discussion.

I.—SPRAINS.

A sprain may be defined as a momentary disturbance of the normal relation which exists between opposing joint surfaces, but varying very much in degree. However slight the disturbance is, some stretching of the surrounding parts must take place, accompanied by effusion of blood and subsequently of lymph. The degrees of a sprain are very variable. In some cases the injury is so slight as to cause little more than temporary inconvenience; in others the ligaments are ruptured; and in the severest of all the pull on the ligaments is such as to tear off a small portion of bone. Mr. Callender described these last-named cases as "sprain-fractures."

Before discussing the question of treatment it is well to ask what takes place exactly when a joint is sprained, and to elucidate this point we must look briefly at the parts composing a joint, for the first fact of importance to grasp is that such an injury affects every kind of tissue entering into the composition of a joint. We have first of all the bony surfaces more or less adapted to one another, generally fitting closely and moving freely on one another through the medium of the smooth articular cartilage. The bones and the cartilage are covered by a continuation of the synovial membrane. Binding the bones in apposition are the various ligaments composed of inextensile and, so long as they are uninjured, painless fibrous tissue. The synovial membrane is reflected on the inner aspect of the ligaments, and between the endothelial surface of the synovial membrane and the ligaments is a more or less thick padding of sub-synovial tissue in which blood-vessels, lymphatics, and nerves are freely distributed. Outside the ligaments are numerous muscles and tendons by means of which the movements of the joint are governed and directed. These are quite as much a part of a joint as the ligaments and bones. Tendons frequently run in canals or tubes of fascia over the joint and are closely attached to the capsule; and around the tendon-sheaths and filling up the inequalities about the capsule is a large amount of loose connective tissue known as peri-articular tissue. When a sprain occurs each one of the structures mentioned is affected considerably. As a rule the bone is only slightly, if at all, injured. The ligaments are frequently stretched and torn; and blood and, later, lymph are poured out from the vessels of the sub-synovial and peri-articular tissues into the joint cavity and into the tendon-sheaths, amongst the muscles and into the peri-articular tissues; hence the swelling of the parts. Some of the fluid so effused is ultimately absorbed through stomata which exist on the surface of the endothelium of the joint. In this respect the joint cavity may be looked upon as a large lymphatic sac. The remainder of the fluid is taken up by the connective-tissue spaces.

The symptoms of a sprain are sufficiently well marked. At the moment of the accident there is pain, often of a sickening character. It is referable to several causes—namely, stretching and tearing of the ligaments, sudden tension of the soft parts, and effusion of blood into the joint. The pain becomes less severe shortly after the accident and even disappears in slight cases. This is the period of quiescence. It then reappears or increases in intensity owing to the tension arising from extravasation in the joint cavity and the peri-articular tissues, and is referred to those spots where the ligaments are most extensively damaged. Coincidently with this there is swelling which is especially noticeable at those parts of the capsule which are not supported by ligaments or by muscles. With the increase of pain and swelling the movements of the joint become limited and even lost. After a time, usually from three to four days, subcutaneous extravasations of blood can be made out and are always most marked where the damage to the ligaments and peri-articular tissue is greatest. An observation of their position and extent affords a guide as to one detail of the treatment. The pain, swelling, extravasation, and loss of movement extend over a few days to two or three or four weeks. The essential point to bear in mind is the existence of two stages as indicated by two well-defined attacks of pain. The first is that of injury associated with stretching and tearing of the parts and effusion of blood. A period of quiescence then ensues, lasting two or three hours, followed by pain due to tension and continued effusion of blood. A great deal of damage is often sustained by the patient when he attempts to use a sprained joint during the quiescent period, and the idea is often put into practice of walking off a sprain of the ankle. It will be readily recognised that the period of convalescence is much retarded and the effects of the sprain take a longer time to wear off.

It is important in severe cases to make the diagnosis as clear as possible, especially where the condition of "sprain-fracture" exists, and for that purpose the employment of the Roentgen rays is invaluable. Even when no fracture has taken place there are frequently found about the joint some tender spots. These spots are pretty constant in position. For instance, at the knee a spot is found just below and on the inner side of the patella; at the ankle, the front of the external malleolus. These spots are first noticeable during the second period of pain after the accident and they persist for some considerable time. Their presence is due in the first place to ruptured ligaments and later to the persistence of roughened, inflamed, synovial fringes, or sometimes to places where the extravasation of blood and lymph has not been absorbed. If they should persist for some weeks or months after a sprain their usual cause is the formation of bands of adhesion. It is important to remember the existence of these spots and the causes of them, since there often arises a very considerable difficulty after a sprain in getting rid of these painful places. In fact, patients often complain and feel dissatisfied that while they are able to move the joint with a fair amount of freedom their ease in locomotion is considerably interfered with by these painful spots. There are certain predisposing causes of sprains. Some abnormal conditions of the limb are distinctly blameable—for instance, ankylosis of the knee, club-foot, and genu valgum. These disabilities place an excessive strain upon parts of a joint which are not naturally adapted for meeting such a strain. Other conditions are—atrophy of the muscles, whether as the result of infantile paralysis or injury to a nerve. At the ankle the most common cause of a sprain is relaxation of muscles and ligaments associated with anæmia and similiar conditions. Instead of the muscles and ligaments being so toneful that they can be immediately braced to meet any sudden call upon them they are relaxed, the joint surfaces are readily displaced and so a sprain follows. Age has also a certain influence. An injury which in a child would be sufficient to produce a severe sprain or a separation of the epiphyses will in the aged produce a fracture.

Now, as to treatment, there are two methods—that of immobility and that of mobility. By these are meant the method of rest and the method sometimes adopted of rapid forcible movement immediately after a sprain. If the method of immobility be adopted we have the following means at our disposal. The application of heat, of properly applied pressure, fixation by splints and plaster-of-Paris, friction, and the use of the constant current. These are all valuable in their places, but the true treatment for sprains consists in the appreciation of the right time to apply them. Cold applications either of ice, cold water, or evaporating lotions have of late fallen into considerable discredit. But the discredit is not deserved. It is due, not to the agent itself, but to a want of intelligence in applying it. If we revert for a moment to what happens at the time of receiving a sprain

we shall note that at the moment of injury numerous small vessels are ruptured and there is an instantaneous pouring out of a certain amount of blood and of lymph, so that effusion goes on for three or four hours after an injury. It is during these hours that the application of cold is so effective, and it seems to me that it acts in the following direction. It is a local constringent of the vessels, lessening their size and limiting the effusion. Now, if the amount of effusion poured into and around the joint be controlled the time of healing is lessened, and the probable amount of stiffness afterwards is also decreased, so that the patient recovers sooner. It is therefore quite rational to apply cold during the first three or four hours after the accident, and, indeed, it is the best method at our command. If there be a desire to check further the amount of effusion this can be readily done by the application of pressure and placing the joint in such a position that its potential cavity is lessened. For example, the knee should be placed in extension and not flexion, the ankle at a right angle and not in full extension nor in full flexion. Pressure is usually applied by bandage, but herein there is an intelligent and a non-intelligent method. If an ordinary bandage merely be bound round the joint the chief part of the pressure is made on the prominence of bones at the joint, but pressure must be made so that it is brought to bear evenly on all parts of the capsule which can be got at. For example, in the case of the ankle-joint a bandage around the ankle merely presses on the external and internal malleoli and on the tendo Achillis behind. But, now, if three or four layers of cotton-wool be placed on the joint with a little additional amount in front of and behind the internal and external malleoli and the bandage be then applied, the cotton-wool sinks into the various hollows and effectually compresses the distended capsule. So that if the sprain be seen within the first two or three hours of its occurrence the following treatment should be carried out. Apply cold vigorously for from about ten minutes to a quarter of an hour, either by pouring cold water over the joint or by the application of ice or spirit lotion and then wrap the joint round with lint or other suitable material soaked in cold water or spirit lotion, put on the cotton-wool in the manner just indicated and place the joint in such a position that there is least potential cavity for effusion to be poured into and firmly bandage the part.

During the period of quiescence the same line of treatment should be adopted, for there is some quiet effusion still going on. But when the second attack of pain ensues and it is becoming more severe, the application of cold is not of much value, since by this time the tissues are distended with blood and with lymph and effusion has now ceased to be poured out. The right thing to do is to apply heat, as hot applications not only diminish the pain but exercise a permanent effect upon the duration and the amount of swelling in this way; when the vessels which have been injured have recovered their tone the application of hot water or of heat in other forms promotes absorption, so that the effused blood and lymph are as rapidly as possible taken up into the blood-vessels and lymph-channels. During this time the joint should be kept at rest and pressure should be maintained on it by cotton-wool and a bandage, since well-directed pressure also assists absorption.

The most vexed question in connexion with a sprain is the duration of this period of rest. How long should it be persisted in? It may be said that as a rule most joints are rested too long and that at an average of three or four days after the swelling has subsided movement of the joint should be commenced. The direction of the movement is a most important point. It has already been stated that we can ascertain by the position of the tender spots and by the distribution of extravasated blood which part of the joint has been most injured. Take, for example, injury to the external lateral ligament of the ankle, no one would be so unwise as to invert the ankle as a part of the early movements, but would flex and extend and carefully evert it so that whilst moving the joint he would be in no way interfering with the healing of strained and of ruptured ligaments. It should not be forgotten that constitutional conditions influence the question of sprains very considerably. If the patient have a tuberculous history or a gouty or a rheumatic-gouty history he should rest much longer than should a patient with an ordinary history.

When the amount of swelling is very considerable hot applications and rest are not sufficient. The best thing is properly applied friction. The object of friction is to empty the lymphatics of a certain amount of coagulated lymph, and in rubbing the parts it is always advisable to begin to rub that part of the swelling which is most distant from the joint, thus emptying the distant lymphatics first and then those which are nearer the joint and so promote circulation of lymph from the most congested to the least congested parts. Together with rubbing, frequent application of hot water and gentle movement should be carried out. If after ten days' treatment on these lines the thickening about the joint have not disappeared and there still remain tender spots on moving the articulation and on pressure, counter-irritation by blisters is called for. As a rule, one may say that in a fortnight or three weeks with the above treatment a severe sprain will cease to give rise to trouble and inconvenience and the patient can go about with comfort. Sometimes, however, it happens that on the patient attempting to use the joint acute pain sets in. This is due to sub-acute or chronic congestion of the joint, and the only treatment for it is absolute and complete rest. It is easily effected by means of a plaster-of-Paris application, and from four to six weeks is not too long a period to keep such a joint entirely at rest. It, however, frequently occurs that after the removal of the splint the movements are necessarily somewhat stiff and awkward and are not infrequently painful. As a rule, such pain does not arise from adhesions within the joint but it is really due to the condition of the muscles. They are at this stage somewhat wasted and their tendons are more or less glued in their sheaths. There are two means of overcoming these difficulties: one is by rapid movement of the parts under an anæsthetic and the other is by more gradual methods. The former, or the more forcible method, sometimes meets with astonishing success, but at other times it is followed by disaster, especially in cases with a tuberculous inheritance. The more gradual means comprise friction, the use of the hot-air bath, and the constant current. It is essential that patience in treatment should be inculcated, and if cases are treated on the above lines there will not, as a rule, be much difficulty in bringing even severe and complicated forms of sprain to a successful issue.

Allusion has been made in an early part of the paper to the practice of treating sprained joints by the method of mobility from the first. It is one which can only be employed in very slight cases and even then with some misgiving, for in certain patients the symptoms instead of rapidly clearing away become more pronounced and permanent thickening and disability of the joint remain.

II.—THE TREATMENT OF SOME FRACTURES.

The treatment of fractures about the elbow-joint.—Of all fractures those in the neighbourhood of this joint are more difficult to diagnose and are more often followed by disastrous consequences both to the practitioner and to his patient than any other fractures, and such was more often the case formerly than now that the Roentgen rays permit of early recognition of the mischief. But it must often happen that the rays are not available. Excluding fracture of the olecranon the general practice has been to put the arm up at a right angle with the forearm in the mid-position between pronation and supination. In my opinion keeping the limb in this position for a fortnight or three weeks is the cause of most, if not all, the after-trouble. Now I am about to propound an axiom—namely, that in all injuries about the elbow-joint except fracture of the olecranon the forearm should be forcibly extended, then supinated, then acutely flexed—that is to say, the limb should be placed with the ball of the thumb of the affected limb resting against the neck on the opposite side. No splint is needed and, indeed, is harmful, for the position can easily be secured by means of a sling passing round the neck and round the wrist. For the knowledge of this axiom and for an insight into its practical value I am wholly indebted to my friend Mr. Robert Jones of Liverpool.

It is interesting to see how it works out. Taking, for instance, a case of dislocation of the elbow backwards with fracture of the coronoid process of the ulna. If the limb be put up in the usual right-angled position the dislocation does not remain perfectly reduced, while the separated coronoid process is drawn upwards by the action of the brachialis anticus and acquires a new fixation point higher up on the ulna so that it locks prematurely in the coronoid fossa of the humerus and thus limits movement. Or, again, to take those severe injuries to the lower end of the humerus in which there is an oblique fracture into the joint with frequent displacement forwards of one of the condyles, if the limb is put

up in the usual way at the right angle the displacement is not reduced, a large mass of callus is thrown out on the front of the humerus, and at the end of three or four weeks the range of movement is found to be limited to a few degrees and no efforts whether under an anæsthetic or not can increase this. If, however, as soon as possible after the accident the forearm be fully extended, and with the thumb pressure be firmly made in front of the elbow-joint and the forearm then acutely flexed and supinated and kept in apposition for the time mentioned above the result will be most satisfactory. What has happened is this. The ulnar and radial portions of the elbow-joint being in a flexed position have maintained the fractured parts of the bone in their proper position and by the pressure of the coronoid process into its fossa this depression has remained comparatively free from callus. It may be objected that there will be considerable difficulty in securing complete extension when the bones have been united, but it is a practical and therefore certain point that at the elbow after all fractures, except those of the olecranon, the difficulty arises not in obtaining extension but flexion movement, and it is this very difficulty which is obviated by the method of which I am speaking. To take one more example, a transverse fracture of the lower end of the humerus, if the right-angled position be adopted, the lower end of the upper fragment projects forwards and the lower fragment is displaced backwards. By adopting the acutely flexed position this is at once overcome. The same method is applicable to dislocations of the elbow after reduction, for if that position can be assumed there is no doubt that complete reduction has taken place. The value of the method might be exemplified in each of the many fractures in the neighbourhood of the elbow-joint, but space will not serve. Actual trial of the treatment of all doubtful injuries and fractures in the neighbourhood of this joint, except fractures of the olecranon, by fully extending, then supinating the forearm and acutely flexing it without the subsequent use of splints, pads, and bandages, and merely using a sling, will prove the truth of these statements in a most gratifying way. At the end of from three to four weeks in the case of a fracture the hand should be dropped a little, and then two or three days afterwards it should be noted whether the patient can raise the forearm to the fully flexed position. If he can, the sling may be further loosened and the process repeated. If he cannot, the forearm must be placed back where it was previously and kept at rest there for some days and the experiment then be repeated.

Separation of the lower epiphysis of the femur.—This is a rare accident but there are many interesting points in connexion with it. The separated epiphysis is usually displaced forwards and not backwards, unlike the displacement which occurs in a transverse fracture of the lower end of the femur; the displacement is backwards almost always in the latter case. Forward displacement of the lower epiphysis is accounted for by this circumstance—the epiphyseal line is directed from the front downwards and backwards so that the epiphysis more readily glides forward on to the shaft. In transverse fracture the line of fracture usually passes above the attachment of the gastrocnemius; hence the fragment is tilted backwards. Another point of interest about separation of the epiphysis of the lower end of the femur is that it is almost always due to a wheel-accident, the most common cause being that a boy riding behind a cab gets his leg caught in the wheel and the epiphysis is wrenched off. There are two difficulties in treatment—first, to reduce the epiphysis and, secondly, to maintain the reduction. This can sometimes be accomplished by division of the tendo Achillis and forcible extension, but the epiphysis is extremely liable to become displaced. To prevent this Mr. Jonathan Hutchinson, jun., and Mr. H. L. Barnard recommend that the limb should be put up with the heel touching the buttock. I have made trial with both methods and have sometimes failed with them and been compelled to open the joint and to fix the epiphysis in place with a steel nickel-plated screw, and indeed this seems to me to be the best course to adopt in doubtful cases.

NEW ISOLATION HOSPITAL.—The Geiligaer District Council have decided to erect a permanent isolation hospital to take the place of three small cottages at present used for the purpose of isolation and the resources of which have proved totally inadequate during the epidemic of typhoid fever which is at the present time affecting the small mining village of Pontlottyn.

REMARKS ON TEN CASES OF ENTERIC FEVER IN WHICH THE BLOOD WAS EXAMINED PERIODICALLY FOR AGGLUTINATIVE PROPERTIES.

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THIS investigation was undertaken mainly with the following objects: 1. To determine as far as possible whether the serum reaction is any aid to prognosis and if any connexion between the serum reaction and the presence of complications, especially relapse, can be traced. 2. To determine whether the blood of patients suffering from enteric fever reacts better to the bacillus coli communis than the blood of patients not so suffering, and, if so, to see if the cases which so react run a different clinical course to the others, and if in such cases any causal connexion can be traced between this reaction and complications or relapse. 3. As a subsidiary point, to determine whether considerable differences in clumping power exist between typhoid bacilli obtained from different sources

It is now universally accepted that the bacillus coli communis is not a separate, distinct, and invariable organism, but rather that the name covers a group of organisms, closely allied but differing among themselves in certain details, chemical, morphological, and pathological. It is therefore of importance that a number of bacilli coli obtained from different sources should be used. The bacilli coli examined were derived from the sources shown in the following table:—

TABLE I.

Race of bacillus coli.	Whence obtained.
I.	Isolated from the stools of a patient suffering from enteric fever.
II.	Isolated from the urine in a case of pure bacillus coli infection of some part of the urinary system.
III.	The stock laboratory bacillus coli culture.
IV.	Obtained from a case of pyosalpinx.
V.	,, ,, an abdominal abscess.
VI.	Isolated from the mesenteric glands in a case of enteric fever.
VII.	,, ,, stools of a patient suffering from enteric fever.
IX.	,, ,, stools of a patient suffering from enteric fever, Case 3 of the series.
X.	,, ,, stools of a patient suffering from enteric fever, Case 9 of the series.
XI.	,, ,, stools of a patient suffering from enteric fever, Case 3 of the series.
XII.	,, ,, stools of a patient suffering from enteric fever, Case 9 of the series.
XIII.	,, ,, spleen of a patient who died from enteric fever.
XIV.	,, ,, milk (obtained from a farm) suspected of causing a small outbreak of enteric fever.

All of these except Coli III. were fairly recently isolated. Coli III. had been sub-cultured for over a year in the laboratory. It will be noticed that Coli I., VI., VII., IX., X., XI., XII., and XIII. were obtained from cases of enteric fever. They differed among themselves in rate of coagulation of milk, production of indol, &c. Only the pathogenic effects of Coli III. and Coli XIV. were tested. Coli III. is quite non-pathogenic even in considerable doses. Two cubic centimetres of Coli XIV. injected intra-peritoneally into a young rabbit caused death in about, or less than, 24 hours and the bacilli were isolated from the liver, spleen, peritoneal fluid, and heart blood. A variety of Gaertner's bacillus was also used on one or two occasions.

A number of typhoid bacilli isolated from different cases were also used. They will be indicated as follows:—Ty. St. (the stock laboratory culture), Ty. S, Ty. R, Ty. M, and

Ty. B—these last four were isolated from spleens of patients who died from enteric fever. All five of these races were obtained from different cases of enteric fever. Ty. S and Ty. St. were non-virulent even in considerable doses (i.e., five cubic centimetres of young broth cultures injected intra-peritoneally into guinea-pigs had no effect). Ty. R was isolated nine months before these observations were made, so probably it is non-virulent. It was not tested for virulence. Ty. M and Ty. B were both isolated in the autumn of 1899 and both showed a considerable degree of virulence. The blood was collected from each case as far as possible every week and was stored till required in the ordinary sealed glass pipettes. The method of examination employed was in all cases the microscopic one. The diluted serum and broth (bacillus typhosus or bacillus coli) were mixed and a hanging drop preparation was made. The time allowed for the reaction to complete itself is of considerable importance. To insure comparable results in this particular the same time-allowance was given in each examination which was made. Very dilute sera require a considerable time to effect their specific action. Two hours is a convenient and fairly suitable period, and for all the following examinations this was the time-allowance. A number of control experiments were made with sedimentation tubes, but they are not included in the figures given in the paper. The dilutions were all accurately made by fine glass pipettes and in every case the diluting fluid consisted of 0·75 per cent. sodium chloride.

In comparisons between the agglutinative power of different sera it is exceedingly important that the conditions shall be comparable. This is probably often overlooked. Thus the age and nature of the typhoid culture used, the age of the culture from which it is a sub-culture, the temperature of incubation, and especially its degree of reaction (acidity or alkalinity), all may, and in some cases certainly seem to, affect the sensitiveness of the reacting typhoid culture. It is well known that the agglutinative power of any serum undergoes little or no deterioration by being kept. This was shown by Widal and others and incidentally I have been able to confirm this. To render the sera of the same case strictly comparable the tubes of blood collected week by week were not examined at once, but were kept until all the blood required was collected from that case. They were subsequently examined together so that the same broth culture of the bacillus typhosus or bacillus coli in question was, as far as possible, used for all the sera of that case. In this way differences of sensitiveness of culture, &c., were quite excluded.

Broth cultures about 18 to 20 hours' old incubated at 37° C. were used in every case unless otherwise indicated. These broth sub-cultures were made from agar cultures from two to four weeks old and kept at the room temperature. The broth used was very faintly alkaline to litmus, and a large batch of broth tubes were made at once and kept specially for this work, so that for many of the different cases the same batch of broth was used. This question of comparable conditions is a very important one. In some cases, but practically almost entirely with Ty. S, Ty. St., and Coli III., a scum formed on the surface of the broth. These broth tubes were filtered through ordinary filter paper and the filtered solution (usually containing fewer bacilli) was used. These cultures also frequently showed pseudo-clumping (*vide infra*), and as special means were not infrequently required to obviate this the remark made above in regard to the exact comparability of the broth sub-cultures does not apply to all the cases where these cultures were used.

I have to thank Dr. S. Ringer, Dr. F. T. Roberts, Dr. G. V. Poore, and Dr. T. Barlow for their kind permission and for the facilities offered to me to examine the blood and record the clinical symptoms of the patients suffering from enteric fever under their charge in University College Hospital, London.

In considering the cases examined I will first deal with the question of serum prognosis. From this point of view the reaction has been investigated by a number of observers, notably by Courmont,[1] who believes that valuable prognostic information may be obtained from repeated determination of the agglutinative power of the blood. He holds that in cases in which the agglutinative power rises as the temperature falls, falling again later in the disease, the prognosis is good, but that a bad prognosis must be given with a feeble reaction and in a case serious clinically, and also if the reaction is feeble at the height of the fever. A further conclusion is that a delayed serum reaction not appearing until after the seventeenth day is met with in the severe forms and in the very mild forms. Widal states that, as a general rule, the reaction is less marked in slight cases than in severe cases and is always less lasting after the defervescence, but he appears to think that the reaction is of but little use in prognosis. Catrin[2] thinks that the intensity and the early development of the reaction are in favour of a severe prognosis. The majority of observers, however, believe that little or no information in regard to prognosis can be obtained from the agglutinative power of the sera. Horton-Smith[3] says: "The only conclusion which can be drawn ..... is that no certain prognosis should be based on the intensity or the reverse of the serum reaction, and that consequently quantitative measurements except for diagnostic purposes are of but little value."

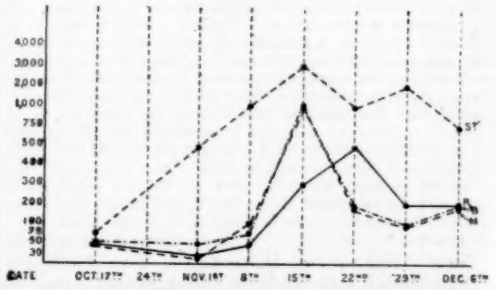
Is any such broad relationship between severity and reaction shown in the cases recorded here? As a general rule, does a marked reaction indicate a severe attack and a feeble reaction a mild attack? Or is the converse true, or is there no traceable connexion? Careful examination of the cases given below show no such broad general relationship. It is true that Case 2 and Case 8 were both mild cases and that in both of them only moderately marked reactions were obtained and also that Case 3, which was a well-marked case, gave very marked reactions at one period, yet, on the other hand, Case 4 and Case 7 were both severe and in both of these, on the whole, the reactions were not well marked. Also, considered in this broad way, under what category are we to place cases which at one time react very badly or not at all, while at other times they react markedly? The examination of these cases, therefore, confirms the more generally accepted opinion that the intensity of the reaction bears no relationship to the severity of the attack and is of no aid in giving a prognosis.

It is also of importance to find out whether any relationship exists, as Courmont believes, between the clinical course of the disease and the varying clumping power of the blood examined at different stages of the disease. The most graphic way to study this question is to make charts showing the highest dilution at which a positive reaction was obtained and then to compare these charts with the clinical features of the case. Weekly examinations of the blood were made and in most cases a number of different races of typhoid bacilli were used. The charts in Cases 1 to 9 were made in this way. For the chart in Case 10 the blood was only examined twice. The figures are made by joining the points which mark the maximum dilution giving a positive reaction in two hours. In the charts the vertical line of figures refers to the dilution of the serum employed and the horizontal to the date of examination. The several curves are made by joining the points giving a positive reaction with the highest dilution and are shown by different dotted lines for the different races of bacillus typhosus employed. The particular race used is indicated by lettering at the end of the curve, thus R=Curve obtained by using Ty. R, B=Curve of Ty. B, &c. The lines employed are indicated as follows: —— R, – – – – St or S, – · – · – · – B, – ·· – ·· – M.

The following are brief clinical summaries of the cases:—

CASE 1.—The patient, a man, aged 30 years, was admitted into University College Hospital on Oct. 16th,

CHART 1.



The M curve in this chart is wrongly indicated by the illustrator. It should be indicated by – ·· – ·· –.

[1] Thèse de Lyon, 1897, and La Semaine Médicale, 1896.

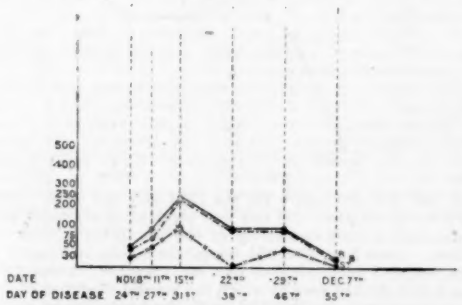
[2] La Semaine Médicale, 1896, p. 418.

[3] "Typhoid Bacillus and Typhoid Fever," Goulstonian Lectures, THE LANCET, March 24th (p. 821), and 31st (p. 910), and April 14th, 1900 (p. 1060).

1899, and was discharged on Dec. 8th. The first symptoms occurred about six weeks before admission with violent pains in the abdomen. For the following three weeks the patient suffered from severe pain, sickness, and diarrhœa, and was confined to bed. Though he felt weak he then resumed work and was at work until Oct. 11th when pains in the abdomen and the side began. On admission the patient had a temperature of 104° F. which, however, rapidly declined and reached normal on Oct. 22nd. On Nov. 3rd the temperature rose again and the patient apparently had a relapse. The temperature went back to normal on the 21st. The temperature indicated a definite relapse, but there were no symptoms to account for the relapse and no fresh typhoid symptoms were exhibited. Typhoid spots were present on admission, but not during the relapse. The case was apparently not a severe one, the patient being admitted into the hospital towards the end of the attack.

CASE 2.—The patient was a man, aged 21 years. He was admitted into University College Hospital on Nov. 6th, 1899, and was discharged on Dec. 8th. His illness began about Oct 16th, three weeks before his admission, with a bad headache which lasted for a week. There was some slight bleeding from the nose and the patient felt very ill. Diarrhœa and vomiting began later. A few typhoid spots were found soon after admission. A little blood was passed in the stools

CHART 2.

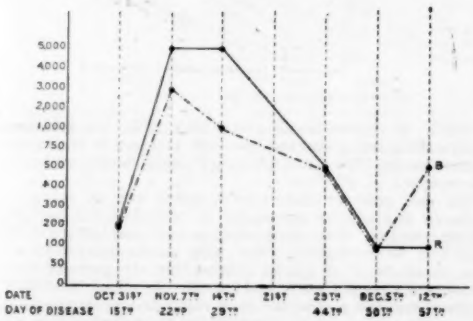


The st curve in this chart is wrongly indicated by the illustrator. It should be indicated by — — —. The curve of Ty. M is the same as the curve of Ty. B.

during the course of the disease. The temperature was 102·8° F. on admission and it reached its highest point (103·4°) on Nov. 8th. The temperature was quite normal from the 19th until the patient left the hospital. There were one or two actions of the bowels for the first few days after admission and they were subsequently produced by enemata. This was a mild case of typhoid fever with only 13 days of temperature in the hospital and no complications.

CASE 3.—The patient was a girl, aged 14 years. She was admitted into University College Hospital on Oct. 28th, 1899.

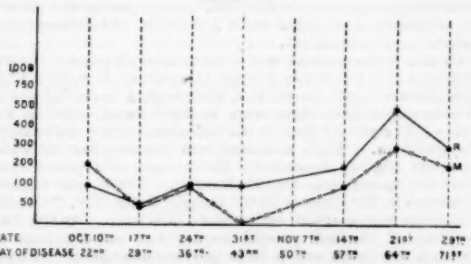
CHART 3.



The first symptoms, consisting of faintness, headache, and vomiting, appeared on Oct. 17th and typhoid spots were first noticed on Nov. 1st. The temperature was 104·8° F. on admission and remained high until Nov. 2nd when it fell rapidly and reached normal on the 4th. From the 5th to the 11th it was between 99° and 102° and it was practically normal from the 18th. The patient suffered from profuse diarrhœa which was most marked from Oct. 30th to Nov. 11th.

CASE 4.—The patient was a man, aged 27 years. He was admitted into University College Hospital on Sept. 26th, 1899, and was discharged on Dec. 4th. His illness began on Sept. 19th with pains all over his body, loss of appetite, and slight headache. On the 23rd he had to take to his bed and on the next day he had severe epistaxis When admitted he showed well-marked spots. On Oct. 17th the patient had a rigor and on the 13th and 14th he had profuse attacks of hæmorrhage from the bowel and lost altogether about three pints of blood. There was constipation throughout for which enemata were

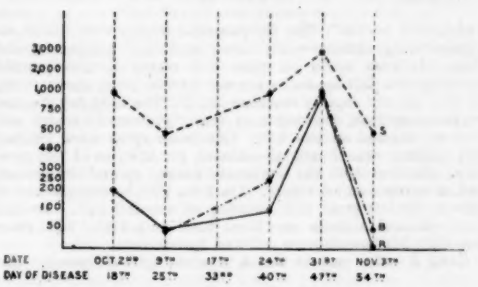
CHART 4.



given. The temperature remained high until the middle of October and reached normal on the 24th. On the 30th it rose again with pain and swelling of the left leg and it returned to normal by the middle of November. On Oct. 3rd and subsequently for a week the patient was very delirious and scarcely slept at all, his general condition being very bad. The case was marked by a very profuse typhoid rash. Clinically this was a severe case with marked hæmorrhages and phlebitis.

CASE 5.—The patient was a man, aged 25 years. He was admitted into University College Hospital on Sept. 27th, 1899, and was discharged on Nov. 15th. His illness began on Sept. 14th with great pain in the loins, and on the third day there were violent hæmorrhage and vomiting. The patient's temperature on admission was 104° F., but it fell rapidly, and became normal on Oct. 6th. It began to rise again on the

CHART 5.

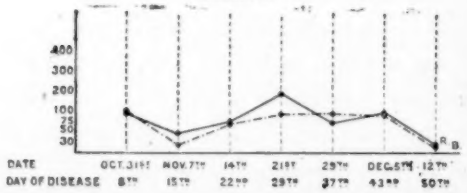


11th and a well-marked relapse then took place. It fell back to normal on the 28th, and this was maintained until the patient left the hospital on Nov. 15th. The relapse was marked by fresh spots and the spleen remained enlarged. The relapse showed a typical "staircase" rise and fall of temperature. There was constipation throughout. Clinically this was a moderately severe case.

CASE 6.—The patient was a woman, aged 29 years. She was admitted into University College Hospital on Oct. 30th, 1899. The first symptoms occurred on the 24th, when the patient had severe headache and pains in the back, and she remained in bed from the next day till she was admitted into the hospital. Spots were not noticed till Nov. 4th. The temperature from Oct. 30th to Nov. 3rd ranged between 101·6° and 104° F., from Nov. 4th to the 11th between 100° and 102°, and from the 12th to the 17th between 99° and 101°. The temperature reached normal on the 18th and remained so until the 21st.

A relapse then began, and the temperature reached its maximum on Nov. 30th, when it was 103·8°, and did not

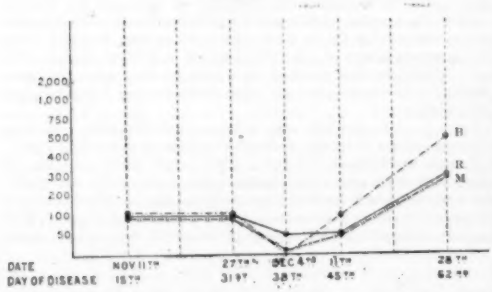
CHART 6.



decline to normal till Dec. 15th, and this was maintained until the patient left the hospital. Constipation was present on admission and lasted until Nov. 29th, but subsequently natural actions occurred.

CASE 7.—The patient was a man, aged 29 years. He was admitted into University College Hospital on Nov. 6th, 1899. The disease began about Oct. 23rd with a severe attack of diarrhœa and later there were headache and pains in the limbs. The patient took to his bed a week after the onset of the diarrhœa. When admitted into the hospital his abdomen was slightly distended. There were no typhoid spots and the spleen was not to be felt. There was nothing abnormal in the heart or in the lungs. From Nov. 7th to the 9th there was marked and violent delirium. On the 19th swelling of the left parotid began, and on the 24th an incision was made and a little pus was evacuated. The pus contained only staphylococci and streptococci; there were

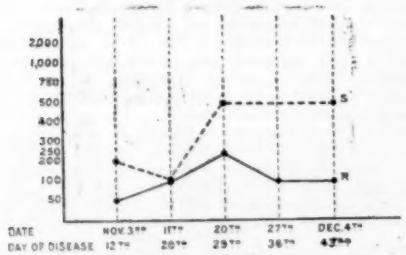
CHART 7.



no typhoid bacilli. The temperature, which was 103° F. on admission, gradually came down and was normal by the 14th. It rose again on that day owing to the parotid swelling, but fell again to normal by the 29th, again rising on Dec. 1st and rapidly reaching 103·2°. The next day it again began to decline, showing a typical "staircase" chart, and reached normal on the 6th. No fresh spots were noticed and nothing was found to account for the rise of temperature. On Nov. 10th the temperature went up and the patient had a succession of rigors. On Dec. 17th he complained of pain in the left groin and swelling of the left calf. He had three natural actions on Nov. 10th and 11th, but since that time his bowels were relieved by enemata.

CASE 8.—The patient was a woman, aged 31 years. She

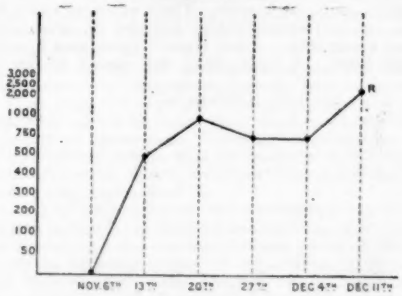
CHART 8.



was admitted into University College Hospital on Nov. 1st and was discharged on Dec. 9th, 1899. The illness began at the end of September with loss of appetite and of sleep. The woman became very weak and was unable to get about, but she did not take to her bed until she was admitted into the hospital. Typhoid spots were first noticed on Nov. 5th. For the first week after admission the temperature was up to 104° F. during some part of the 24 hours, but gradually fell during the next week, and remained practically normal from the 14th. No complications ensued and the patient made an uninterrupted recovery. Her bowels were at first constipated, but on and after Nov. 10th they acted naturally.

CASE 9.—The patient was a woman, aged 30 years. She was admitted into University College Hospital on Nov. 1st, 1899. The illness began three weeks before her admission into the hospital with severe headache. She had feverish attacks, with alternate fits of heat and cold and sweating at night. She was treated for rheumatism. On admission she had pains in her ankle-joints. On Nov. 6th typhoid spots were found and the patient passed a typical typhoid stool. A little blood was passed in the stools on the 7th

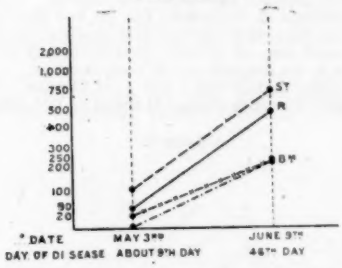
CHART 9.



and the 9th and again on the 23rd and the 25th. The patient had diarrhœa for the first week after admission and maintained a fairly free action of the bowels throughout the attack. Until Nov. 30th the temperature remained high; it then began to decline and on Dec. 3rd it reached normal. This was a well-marked case in which the general condition of the patient was good and in which, with the exception of slight hæmorrhage on two occasions, there were no complications.

CASE 10.—The patient was a man, aged 30 years. He was admitted into Cardiff Sanatorium on May 2nd, 1900, and was discharged cured on July 12th. He had taken to his bed about April 24th. On admission the rash was very

CHART 10.



marked. A relapse began about May 27th, the maximum temperature being reached on June 1st, but it declined to normal on the 17th. A fresh crop of spots developed during the relapse.

We can now see if any relationship can be made out between any of the symptoms or complications and the serum reaction. The serum reaction and temperature charts will first be considered. The cases unaccompanied by any complications are of special interest from this point of view. These are Case 2, Case 3, and Case 8. In all of these three cases there was a gradual or a rapid fall of temperature which did not rise again. In all three cases the reaction was not at its maximum at the same time as the temperature but was best marked when the temperature was falling or after it had reached normal. Later the agglutinative power fell also. According to Courmont this association indicates a

good prognosis. Case 2 and Case 8 were mild cases, and Case 3 was a well-marked, but not severe, case in a child. The patients in all the three cases made a good recovery. In the main, therefore, these three cases agree with Courmont's dictum. In the other cases complications were present and any possible relationship was therefore obscured. Thus in Case 1 the reaction was only well marked after the relapse and was best marked when the temperature was falling. In Case 4 the highest positive reaction was obtained after the temperature had been normal, or nearly normal, for four weeks. In Case 5 the reaction curves appeared to come down with the temperature, rising again when the relapse began, but reaching their highest point considerably later than the maximum temperature of the relapse. In Case 6 the reactions were feebly marked throughout, and in Case 7 the numerous complications prevented any connexion being traced. In Case 9 the clumping power gradually rose while the temperature remained high and it continued well marked after the temperature had returned to normal. The highest positive reaction was obtained after the reaction had become normal.

In the second place, the relationship to complications is worth investigating, and of these relapse possesses the greatest interest. Relapses were met with in Case 1, Case 5, Case 6, and Case 10. In Case 7 a rise of temperature took place which was very suggestive of a relapse, but no true reinfection, in the sense of fresh spots, occurred and its duration was very short. The fall of the temperature was very suggestive. No obvious explanation of this rise of temperature was noted and at the most it can be considered as a very doubtful case of relapse. That relapses were met with in four (? five) out of 10 cases is easily to be explained, because Case 10 was only selected on account of its relapse while the other three relapses occurred in a series of cases much greater than nine, but in which only nine were carefully worked out, the blood collected from the other cases being only partially utilised. In all these cases of relapse the following peculiarity is noticeable—i.e., in all, at one period or other, before the relapse the blood reacted very feebly or not at all.[4] This can be seen from the serum charts and also in Table II.

TABLE II.

Case.	Relapse.		Remarks on the serum reaction.
	Date of onset.	Day of disease.	
1	Nov. 3rd.	Twelve days after the temperature had reached normal.	Both examinations before the relapse (Oct. 17th and Nov. 1st) showed only weak reactions. Subsequently the reactions became well marked.
5	Oct. 11th.	Twenty-seventh.	Two days before the relapse the blood would only react 1 in 50 with Ty. M, Ty. B, and Ty. R. Subsequently the reaction became well marked.
6	Nov. 21st.	Twenty-ninth.	Two weeks before the relapse the reactions were very feebly marked and they were not well marked a week before the relapse. There was no subsequent well-marked reaction.
10	May 27th.	About the thirty-third.	The blood was only examined twice. The first examination, three and a half weeks before the relapse, showed feeble reactions. The second examination, during the relapse (13 days after its commencement), showed well-marked reactions.

Is the converse true? Do all cases with a feeble reactive power relapse? In the series of cases recorded here this is certainly not the case. This can be readily seen from the charts. To give only one example—In Case 2 the blood was first examined on Nov. 8th, and here, with Ty. B, Ty. R, and Ty. St. no positive reaction was obtained with a greater dilution than 1 in 50. In the relapse cases, except in Case 1, we have a *fall* in the agglutinative power of the blood previously to the relapse. The patient in Case 1 came into the hospital towards the end of the attack, and a slight fall is noticed. It is not unreasonable to suppose that if the serum could have been examined earlier a more marked agglutinative action would have been demonstrated. If so it would bring it into line with the other cases. This fall and subsequent rise again in the other case is only present in Case 4 and Case 7. In Case 7 there is considerable evidence of a relapse of an abortive nature starting on Dec. 1st. If the condition is a true relapse then this fall must be considered along with that of Case 5 and Case 6. In Case 4 the patient had several severe attacks of hæmorrhage, which took place on Oct. 13th and 14th. The fall of agglutinative power was noticed when the blood was examined three days later. It seems not unreasonable to attribute this fall to the severe hæmorrhage which would, one would expect, diminish the quantity of agglutinins in the blood. The fact that here we have severe hæmorrhage on Oct. 13th and 14th with a fall of agglutinative power, and that the agglutinative power of the blood subsequently rises, is of great interest when considered with Gengou's conclusion that if an animal be bled the agglutinative power falls and does not rise again. Contrary to this observer, in this case, apparently, the fall due to bleeding was associated with a subsequent rise, and this is rather what we would expect and further illustrates the close parallel between antitoxins and agglutinins.

Considering, therefore, all the cases we may say that the cases which relapse show at some period previously to the relapse very feeble agglutinative properties and that very generally these weak reactions are preceded by better-marked reactions, yet, on the other hand, it is in no way true to infer that all cases which show a feeble serum reaction will relapse. From so few cases it is futile to lay down definite rules, but stating the matter in another way we are, perhaps, justified in saying that if the blood examined every week shows a well-marked reaction no relapse is to be anticipated, but if a feeble reaction is obtained relapse may follow, and this is especially likely to occur if on previous examination the reaction had been better marked.

A number of observers have recorded cases where, following failure to obtain a positive serum reaction, relapse has followed. Widal records a case with no serum reaction in the original attack. Park also records a similar case. Elsberg[5] includes four cases of relapse in his series. In the first case the reaction appeared on the sixteenth day, in the second on the twenty-fourth day, in the third on the twenty-seventh day, and in the fourth on the thirty-second day. In one case the reaction only appeared during the second relapse. In these cases the reaction in those which relapsed was delayed. Very possibly some slight but incomplete reaction was present earlier. Cabot[6] mentions three cases in which he obtained the reaction only in the relapse and quotes cases by other observers. Lately Dr. H. P. Hawkins and Dr. E. O. Thurston[7] have recorded a case with a negative serum reaction on the fifteenth day, the twenty-second day, and the thirty-seventh day, but a positive reaction on the one-hundred-and-third day, the positive reaction only being obtained after the onset of a relapse. These cases all confirm the evidence that previously to a relapse there is a diminished agglutinability of the blood.

Of the theories of relapse perhaps the most generally accepted one at the present day is that it is a re-infection by the typhoid bacillus, by bacilli already in the body, the re-infection being possible owing to poorly acquired immunising properties and precipitated by the absorption of toxins from the alimentary canal increasing the virulence of the typhoid bacillus. This view is very clearly stated by Dr. Horton Smith.[8] According to this view several factors, two at least, seem to be necessary for a relapse to take place. The blood must be so modified that it permits a re-infection and the virulence of the typhoid bacilli requires raising. As Professor A. E. Wright and Captain G. Lamb, I.M.S.,[9] say, "The agglutinins are bacteriotropic and anti-bacterial substances," and if this be so a low clumping power would seem to be one of the factors which should enable a relapse to take place. It is well known from Courmont's researches that if the typhoid bacillus be grown in a medium containing typhoid serum the agglutinins disappear in proportion to the growth of the bacilli, or, stating it in another way, as Professor Wright and Captain Lamb put it, "the typhoid bacillus cultivates itself in a medium which is relatively poor in agglutinins." A low agglutinative power of the blood would certainly seem to favour re-infection.

It is obvious that the low agglutinative power of the blood

[4] A serum which gives a negative reaction in two hours with a dilution of 1 in 30 is considered not to react.

[5] New York Medical Record, April, 1897.
[6] The Serum Diagnosis of Disease, p. 114.
[7] THE LANCET, Oct. 14th, 1899, p. 1004.
[8] Loc. cit.
[9] THE LANCET, Dec. 23rd, 1899, p. 1727.

is not all that is necessary for a relapse to occur because feeble serum reactions are present in many cases which do not relapse. There must be other factors at work. Fresh virulence of the typhoid organism brought about by absorption of toxins from the alimentary canal is, in the view stated above, assumed to be the most important other factor. That the cause of this fresh virulence is the absorption of the bacillus coli toxins from the alimentary canal obtains no support from my cases, for the cases which relapsed gave no reaction with bacillus coli greater than the non-relapsing cases though several examinations were made both before and after the relapse began. This can be seen from Table III. In fact, excluding Coli III., no positive reactions were met with.

TABLE III.

Case.	When the examinations were made.	Race of bacillus coli examined.	Dilution employed.	Results.
5	Two days before commencement of relapse.	I., II., III., IV., V., VI., VII.	1 per cent.	Coli III. weak + reaction. Others give negative reaction.
	20 days after commencement of relapse.	I., II., III., IV., V., VII., IX., XII., XIII.	1 in 50	Coli III. weak + reaction. Others give negative reaction.
6	Three weeks before commencement of relapse.	I., II., III., IV., V., VI.	1 per cent.	No reaction.
	One week before commencement of relapse.	I., IX., XII., XIII.	1 in 50	" "
	Two weeks after commencement of relapse.	I., II., IV., V., VI., IX., XII., XIII.	1 in 50	" "

The date of the disease in regard to the time when the reaction was best developed is given in Table IV.

TABLE IV.

Case.	Date of disease when reaction was most marked.	Relation of maximum reaction to onset of the relapse.
2	About the fifth week.	—
3	Fourth week.	—
8	End of the fourth week.	—
1	About the seventh to the eighth week.	From two to three weeks after the relapse.
5	Seventh week.	About three weeks after the relapse began.
6	Third to the sixth week.	From a week before and two weeks later than the onset of the relapse.

It is difficult to give a definite date for the other cases not given in Table IV. From this table we see that in the three cases without any complication (Case 2, Case 3, and Case 8) the reaction was best marked about the end of the fourth or fifth week. In the other cases it was best marked after the relapse. In regard to complications other than relapse no special relationship is traceable, nor indeed would any be expected. It is of greater interest to consider these cases in regard to possible bacillus coli infection.

The second object of these investigations was to ascertain whether the blood of enteric fever patients reacted to bacillus coli communis and to elucidate if possible the significance of such reactions. The question of bacillus coli reactions in typhoid fever seems to be a difficult one, and one on which there is great diversity of opinion, observation, and experiment. Courmont[10] finds that the serum of typhoid fever gives a partial positive reaction with bacillus coli, using the same dilution as for bacillus typhosus. He says that the reaction is occasionally more intense with bacillus coli than with bacillus typhosus. Chantemesse[11] obtained negative results. Durham,[12] working with artificially prepared animal sera, found that the blood of animals immunised against bacillus typhosus did not agglutinate bacillus coli races though he obtained well-marked agglutinative effects with bacillus coli in animals immunised against that bacillus. Johnston,[13] working with dried blood, found positive colon reactions in some cases. He says: "A complete colon reaction we have found to be exceptional in ordinary typhoid, and its presence would indicate a condition of coli intoxication sufficient to explain the existence of many symptoms giving to typhoid its ordinary clinical features." Lorrain Smith and Tennant[14] found distinct evidence of bacillus coli reactions, using bacillus coli obtained from the local water-supply and from the spleens of the patients in certain typhoid fever cases and they raise the question of a secondary infection by bacillus coli in cases of enteric fever. In the case of the allied Gaertner's bacillus it seems to be generally admitted that the blood in many, though certainly not in all, cases of typhoid fever contains Gaertner agglutinins. Some of the cases in which bacillus coli agglutinated typhoid sera may no doubt be explained by insufficient dilution of the blood, or possibly the pseudo-clumps occasionally met with in cultures of bacillus coli may not have been guarded against, for, as Stern[15] has pointed out, spontaneous clumping is not infrequently met with in bacillus coli cultures, while Christophers[16] has shown that with low dilutions non-typhoid and typhoid sera will agglutinate bacillus coli very frequently and even in some cases with a dilution of greater than 1 per cent.

A number of different bacillus coli races were tested with sera from typhoid fever cases and from non-typhoid cases (nearly all in 1 per cent. dilution). In all the sera of 15 typhoid fever cases were examined. The result is given in Table V., which shows the reactions of bacillus coli in typhoid fever cases. All the dilutions were 1 per cent. unless otherwise stated.

TABLE V.

Race of coli bacillus.	Number of different cases examined.	Number of different specimens of blood examined.	Number of positive reactions.	Number of negative reactions.
I.	12	24	0	24
II.	7	10	0	10
III.	15	33	17 (1 per cent.), 1 (1 in 50)	15 (3 tested 1 in 50)
IV.	9	11	0	11
V.	9	11	0	11
VI.	9	11	0	11
VII.	5	7	0	7
IX.	8	13	0	13
X.	3	5	0	5
XI.	1	5	2*	3
XII.	7	12	0	12
XIII.	8	15	0	15
XIV.	2	3	0	3

* Only partial reactions.

From this table it will be seen that 11 out of 13 different bacilli coli failed to react in 1 per cent. dilution to any of the typhoid sera, though they were tried in a good many cases and not infrequently on several occasions. Coli XI. gave a partial positive reaction twice out of five examinations in the only case (Case 2) examined. As it was only examined in one case and only partial reactions were obtained I have excluded it from further consideration. The cultures died out and so no further examinations were possible. Coli III. gave a majority of positive reactions. Can the fact that Coli III. reacted in such a high percentage of cases be taken as any evidence that typhoid fever blood has a special action on the bacillus coli? The reaction of this variety of bacillus coli to non-typhoid sera must be considered. Some figures are given in Table VI., which shows the reactions of Coli III. to non-typhoid sera.

[10] La Semaine Médicale, 1896, p. 294.
[11] Ibid., 1897, p. 303.
[12] Journal of Pathology and Bacteriology, 1897.
[13] Montreal Medical Journal, March, 1897.
[14] Brit. Med. Jour., Jan. 28th, 1899.
[15] Centralblatt für Bakteriologie, April, 1898.
[16] Brit. Med. Jour., Jan. 8th, 1898.

TABLE VI.

Source of the serum.	Dilution 1 in 100.	Dilution 1 in 50.	Dilution 1 in 20.
Normal blood (P)	—	—	—
Case of empyema (said to have had typhoid fever five months previously)...	—	+	—
Case of tuberculous meningitis	—	—	—
Case of tonsillitis	—	—	—
Normal blood (O)	—	—	—
Case of appendicitis	—	+ *w**	+ *w**
Case of pneumonia	—	—	—
Normal blood (S)	—	—	—

* + *w* = positive reaction weak.

From this table we see that out of eight non-typhoid cases no reaction was obtained with any of them in a 1 per cent. dilution, but in two out of four examinations a positive reaction was obtained with a 1 in 50 dilution. Taking Table V. and Table VI. together, and considering 1 per cent. dilutions only, we find that out of 15 typhoid fever cases 10 reacted to Coli III. in one or more examinations, while out of eight non-typhoid cases no positive reactions were obtained. We see, therefore, that Coli III. alone of the different varieties of bacillus coli experimented with was distinctly affected and agglutinated in many of the typhoid fever cases. In most of the cases in which a positive result was obtained it was tested with higher dilutions and the limit of positive reaction was obtained, but in only two cases was a positive result obtained with a greater than 1 per cent. dilution. These were Case 11 (Oct. 26), partial reaction 1 in 500, and Case 4 (Oct. 3rd), partial reaction 1 in 1000. Case 11 was a case of typhoid fever in a child, aged nine years, sister of Case 4. Coli III. was the stock laboratory coli culture and had been in artificial cultivation for certainly longer than a year. It was quite non-virulent and very liable to form pseudo-clumps, and frequently formed a scum on the surface, and the culture nearly always required filtering through ordinary filter paper before use. To obtain broth cultures showing no pseudo-clumps special care in regard to the reaction of the broth had to be taken. In other words, it seems to have been a variety of bacillus coli which clumped very readily, and the well-recognised slight action of the special typhoid agglutinins on other bacilli, including bacillus coli communis, seems to have been sufficient in many cases to cause a positive serum reaction. Put in another way, the positive reactions obtained are due to the typhoid agglutinins and this action of Coli III. on typhoid sera does not point in any way to the formation of coli agglutinins. As already stated, many of the bacillus coli races used were obtained from patients in typhoid fever cases and in several instances were tested with the blood of the patient from which they were isolated. In no case was a positive reaction obtained. The above experiments therefore yield no evidence at all of a concurrent bacillus coli infection.

It is difficult to account for the conflicting results obtained by different observers. Some experiments of Van de Velde might be thought to throw some light on the matter. He found, after immunising two horses with two different races of streptococcus, that each serum clumped its homologous streptococcus but not the other streptococcus. The same thing might occur with different bacilli coli, and it is possible that the failure of some observers to obtain coli reactions in enteric fever cases, while success is obtained with other races, may be due to the fact that the appropriate bacillus coli races are not used. Durham[17] immunised an animal against bacillus coli, and found that the immunising variety gave a positive reaction with this serum. Besides this culture one variety reacted completely, another fairly strongly, and two others gave a minimum effect, while the remaining five races were perfectly unaffected. This explanation, however, scarcely seems to be feasible, for on the same view we would expect cases of enteric fever to clump with one variety of bacillus typhosus and not with others, and this appears to be only true to a limited extent, nor does it seem to be true experimentally. Still, the differences between the members of the coli group—using the term in a narrow sense and excluding the bacillus typhosus from the group—are much more considerable than any differences between typhoid bacilli.

In regard to the possible relationship of bacillus coli to complications and to relapse, excepting Coli III. no positive reactions were obtained and no relationship is to be traced. The possible connexion with relapse has been considered above and, as Table III. shows, no reaction to bacillus coli developed after the relapse began.

The last question with which I propose to deal is whether typhoid bacilli obtained from different sources clump equally. Widal, Achard and Bensaude, Durham, and most of the earlier observers found no considerable differences between typhoid bacilli obtained from different sources. Van de Velde, on the other hand, found well-marked differences, estimating differences by time of reaction rather than by limit of degree of dilution. Lorrain Smith also found with different typhoid bacilli considerable variation in clumping power. In investigating this question the only accurate way would seem to be to determine the limits of dilution at which positive reactions are still obtained for each of the different cultures used, for, as Gruber and Durham have pointed out, sera are not entirely *specific* but rather *special* in their action, and unless the extreme limits of dilution are employed differences very possibly would not be brought out. Gruber and Durham's remarks were applied to distinct species of bacilli, but if distinct varieties of bacillus typhosus exist they would equally apply to them. From the charts, and also from Table VIII., it is obvious that considerable differences exist. Excluding Ty. S and Ty. St., however, we see that the other three typhoid cultures used, though they show differences, yet they are not nearly so marked as when compared with Ty. S and Ty. St. Typhoid cultures S and St. agreed in the fact that they both very readily underwent pseudo-clumping. Sometimes sub-cultures contained no pseudo-clumps, especially after filtration through ordinary filter paper, while at other times, using the same batch of broth, marked pseudo-clumps formed in less than 24 hours broth cultures. Using broth cultures of varying degrees of acidity or alkalinity did not by any means always insure freedom from these pseudo-clumps. The reactions recorded in this paper could only be worked out when cultures showing no pseudo-clumps were obtained. By pseudo-clumps I mean that the hanging drop preparations from the broth cultures, instead of showing the bacilli actively motile and moving all over the field, showed, indeed, many of the bacilli separate and motile, but the others were collected together in clumps, generally loose but well marked and unmistakeable and not to be distinguished from the clumps formed under the influence of the specific agglutinins. We seem to have here two distinct kinds of typhoid bacilli cultures—Ty. M, Ty. B, and Ty. R, which never, or very rarely, formed pseudo-clumps under ordinary circumstances, and Ty. St. and Ty. S, which readily formed pseudo-clumps. All these cultures have been under observation now for at least a year and no pseudo-clumps have ever been noticed in Ty. M, Ty. B, or Ty. R, even when broths of considerable differences of reaction were employed. With Ty. S and Ty. St., on the contrary, it was a matter of difficulty to obtain cultures which did not contain pseudo-clumps. A scum on the surface nearly always formed and in most of the observations made this had to be removed previously by filtration. The age of the agar stock from which the broth culture was made seems to be an important factor, but here no constancy or certainty could be obtained. The Ty. S and Ty. St. curves of limits of positive serum reaction cannot be compared fully with the other curves, for the different observations were not always comparable; thus, for instance, broths containing a well-marked acidity were sometimes used and factors which seem to affect the agglutinative power were in this way introduced. For this reason in considering the question of serum prognosis, but little importance has been attached to the Ty. S and Ty. St results when worked out. Ty. S and Ty. St. were two races of bacillus typhosus which, so to speak, even when not forming pseudo-clumps yet tended to clump on slight provocation, and the degree and limit of clumping power obtained do not seem to be strictly comparable to the amount of agglutinin in the serum, but to be influenced by other (chemical and physical) factors. On the whole I have found Ty. S and Ty. St. to clump to an approximately equal extent, but more considerable differences exist between Ty. B, Ty. M, and Ty. R. The differences in agglutinative power shown here (and also those demonstrated by other observers) do not seem to me to be sufficient

[17] Loc. cit.

to justify the conclusion that these races represent several distinct varieties. The decidedly (as a rule) well-marked differences between the Ty. S and Ty. St. group and the Ty. B, Ty. M, and Ty. R group are more easily explained as due to accessory causes—causes which can be acquired and which may be again lost, and yielding differences altogether too variable to merit a differentiation into distinct varieties. I have, for instance, observed the agglutinative power of different typhoid races apparently to increase or decrease under cultivation. Thus when Ty. R was originally isolated, and presumably possessed a considerable degree of virulence, it did not clump at all readily and was not suitable for routine work. It was isolated in March, 1899. Its clumping power seemed to increase later and it became of use for ordinary routine work. The same remarks apply to Ty. M, but I have not noticed such differences for Ty. B or Ty. S. Ty. St. has been isolated for several years. Both Ty. S and Ty. St. appear to be quite non-virulent, five cubic centimetres at least of each inoculated intraperitoneally into guinea-pigs are without the slightest effect while Ty. B and Ty. M possessed at that time considerable virulence. The virulence of Ty. R was not tested. For most of these cultures the ability to clump varied inversely (but by no means proportionately) with the virulence, but this may have been only a coincidence. Horton-Smith[18] from another point of view arrives at the same conclusions. In support of the contention that these differences are not the differences of varieties he states that by using agar instead of broth cultures he could detect very little difference of agglutinative power. The experiments with agar instead of broth cultures which I have made are not sufficiently numerous to record, but on the whole they showed a greater uniformity than when broth cultures were used. Comparing broth and agar cultures I find, as a rule, but not invariably, that the former agglutinated more readily and at a higher dilution than the latter. This is shown in Table VII., where a few examples are given.

TABLE VII.

Typhoid culture.	Case 6 (Oct. 31st).		Case 6 (Nov. 29th).		Case 7 (Nov. 11th).	
	Broth.	Agar.	Broth.	Agar.	Broth.	Agar.
R.	+ w*	+ w	—	—	+ w	—
B.	+ w	+ w	+ w	—	+ w	—
M.	+ w	—	+ w	—	+ w	—

* + w = positive reaction, weak. All in 1 per cent. dilution and with a two-hours limit.

Summing up the matter the following conclusions seem probably justified. 1. Well-marked differences of agglutinative power undoubtedly exist between typhoid bacilli obtained from different sources, certainly when broth cultures are used, and probably also, but to a less extent, when cultures on solid media are employed. 2. That such differences cannot be considered as sufficient to justify a differentiation into distinct varieties, but are rather to be explained as due to differences of present environment and to conditions of environment which have acted in the past upon the race of bacillus, producing changes not fairly stable and permanent but liable to be again modified. In Table VIII., which gives examples of differences of reaction with different typhoid races, the *limits* of positive reaction alone are given.

TABLE VIII.

Typhoid culture.	Case 2 (Nov. 22nd).	Case 3 (Dec. 5th).	Case 3 (Dec. 12th).	Case 4 (Oct. 31st).	Case 4 (Oct. 17th).
R.	1 in 100	1 in 100	1 in 100	1 in 100	in 50
B.	1 in 100	1 in 100	1 in 500	No reaction, 1 in 100	1 in 50
M.	1 in 100	1 in 100	—	No reaction, 1 in 50	1 in 50
St.	No reaction, 1 in 30†	—	—	—	—
S.	1 in 50†	1 in 1000*	1 in 1000*	1 in 500	1 in 500

* 1 in 1000 gave a well-marked reaction. No higher dilutions were examined. † Of great interest in that the reactions with Ty. S and Ty. St. were less marked than with Ty. M, Ty. B, or Ty. R. This I found to be very exceptional.

Cardiff.

[18] Loc. cit.

ACUTE EMPHYSEMATOUS GANGRENE: A CLINICAL AND BACTERIOLOGICAL DIGEST, WITH DETAILS OF A NEW CASE.

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IN the following paper we have thought it well first to describe a case of this disease which occurred in the practice of St. Thomas's Hospital, with full clinical and bacteriological details, as it illustrates very well one of the varieties of this disease and serves as a basis for the subsequent digest of the published literature. In writing the latter we have given first an account of the bacteriological and then of the clinical varieties, and have tried as far as possible to classify the material in a simple manner—a matter of considerable difficulty owing to the great confusion that exists with regard to nomenclature and the exact nature of the disease. Numerous synonyms have been used, such as "acute spreading traumatic gangrene," "malignant œdema," "*gangrène foudroyante*," "*gangrène gazeuse*," &c., but the title which we have given to this paper seems to give a better idea of the exact nature of the disease—viz., that of an acute specific gangrene associated with the production of gas in the tissues. It is as well to mention further that this condition is entirely distinct from so-called "hospital gangrene" and from gangrene due to causes such as injury or disease of blood-vessels, &c., belonging as it does to the specific infectious diseases such as diphtheria, tetanus, &c.

A man, aged 26 years, was admitted into St. Thomas's Hospital on March 9th, 1900, suffering from a lacerated wound of the right arm. He had been knocked down by a tram and the skin was torn from just below the elbow to a point halfway up the back of the arm. The underlying part of the triceps was also torn. The wound was immediately cleaned and sutured under an anæsthetic. Within 24 hours he complained of great pain and the temperature rose to 105·2° F. The arm was dressed, and below the elbow, over an area of the size of the palm of the hand, the skin was of a brownish red colour. The temperature fell to 102·2° at midnight but rose again on the second day to 103·4° and the pain was considerable. The discoloured part was found to be olive-green in colour and had spread half-way up the wound. The epithelium was greasy and it peeled readily; numerous bullæ were seen on the surface. Emphysematous crackling was easily felt in the tissues but no superficial veins contained air. The dead portion was separated from the living by a narrow zone of a greyish-white colour beyond which a reddish-brown discolouration extended to near the top of the wound. The smell was offensive and the patient was vomiting and looking very ill. Up to the time of Mr. F. C. Abbott's arrival the gangrene had visibly spread. We take this opportunity of thanking Mr. Abbott for giving the case to us. The arm was amputated at the surgical neck of the humerus with skin flaps, the inner being the longer as the gangrene was confined to the outer side of the arm. The muscles were cut short and the wound was scoured with 1 in 1000 perchloride of mercury and sutured. On the third day the temperature fell to 98°, but rose immediately to 103° with recurrence of pain. The flaps were found to be gangrenous, especially the inner. Amputation was performed at the shoulder-joint with the smallest possible skin-flaps and the muscles were cut short; the wounds were washed well with 1 in 20 carbolic solution. The patient suffered much from shock and was infused with three pints of normal saline solution and strychnine was injected. On the fourth day the temperature fell to 99·4°, but rose again immediately to 103°. As a streptococcus had been cultivated as well as a bacillus 20 cubic centimetres of antistreptococcic serum were injected into the flank. The wound was examined and gangrene was found to have commenced in the flaps. The flaps were then excised and a large raw surface of about the size of a soup plate was left, which was scoured with 1 in 20 carbolic solution. A second injection of serum was given. On the fifth day the temperature

fell to 99·4° and rose again to 101·2°. Hot dressings of chlorinated soda were frequently applied. The serum injections were continued. On the sixth day the temperature was 100·8°. Several small sloughs were removed from the surface and it was noticed that bubbles of gas could be squeezed from the remnant of the pectoral muscle. A cavity was found there and an offensive slough was removed, the smell being identical with that of the bacillus cultures. The patient was much better and took food well. On the seventh day the temperature was 102·4° at midnight. The wound was cleaner. On the eighth day the temperature was 102·4°. Gas-bubbles were found issuing from another pit identical with the former. On the ninth day the temperature was 102°. A third pit was cleaned out. On the tenth day the temperature was 102°. A fourth pit with two openings was found in the remains of the deltoid muscle. The wound was now covered with granulations. The patient was much better. The pits alone were painful. On the eleventh day the temperature was 100·2°. Two more pits were found. On the twelfth day the temperature was normal. A seventh pit was found. The former pits had been cleaned out with carbolic lotion, the sloughs being first removed. They never extended after this treatment. On the twentieth day the pits were obliterated by granulations. The wound rapidly contracted up and the patient was discharged cured on the forty-fifth day.

The following points in the history of this case are worthy of special mention:—1. The dirt infection at the time of the accident. 2. The extremely rapid and severe onset in a young and healthy man, the temperature rising to 105·2° within 24 hours. 3. The visible spread of the gangrene within two hours. 4. The rapid recurrence of the symptoms after each amputation. In both cases within about 18 hours the temperature had risen to 103° or so. 5. The four operations occurring within four days of his admission. 6. The formation of pits or cavities in the stump during the period of comparative convalescence. The pits were undoubtedly due to the presence and the gas-producing capacity of the bacillus, which was indicated by the bubbles and the unmistakeable odour. But in the open wound the pits did not spread so rapidly, and when once the slough was removed, the pits swabbed, and subsequently syringed with carbolic lotion, they healed readily. 7. The septic condition which was present along with the bacillus and was indicated by the bronzing and reddening of the skin, and which preceded the gangrene as it spread.

Bacteriology.—Cultures were taken from the subcutaneous tissue of the flap, in which gangrene had recurred after the first amputation, immediately on removal from the body. In all the tubes inoculated a copious growth resulted, consisting of bacilli and streptococci with well-marked gas-production and a very disagreeable fœtid odour. This smell was entirely absent in subcultures, but reappeared slightly on coagulated blood serum and very markedly in a medium containing blood. Sections of the subcutaneous tissue stained with methylene blue also showed bacilli and streptococci in very large numbers. The streptococcus failed to grow in subculture, so that a pure growth of the bacillus was at once obtained in the plates. The bacilli were stout and they varied much in length, had rounded ends, were non-motile, and possessed no definite capsule, though in fluid media they tended to stick together in clumps; short chains were also present. No spores were observed. They stained well and uniformly with all the ordinary dyes, but not by Gram's method. The organism grew best under aerobic conditions, but was a facultative anaerobe. It grew well on all the usual media, best at blood heat, but also at the room temperature; cultures were alive and vigorous at the end of two months. In all media, including Uschinsky agar, a very copious gas-formation was observed, solid media being rapidly fragmented. On gelatin the colonies in the depth were round or oval, yellowish white with sharp margins; on the surface white with irregular margins and a uniform fine granularity presenting no special characteristics. There was no liquefaction. The colonies steadily increased in area and thickness, reaching a diameter of from two to three millimetres in four days. Streaked on agar, a greyish-white translucent layer formed, rapidly spreading beyond the needle-track. In agar stab growth occurred all along the line of puncture but more freely at the surface. The medium was fragmented in from 12 to 18 hours by gas-formation. In peptone beef broth rapid growth took place, rendering the medium turbid throughout, with a deposit at the bottom, and in two or three days a thick scum on the surface. In peptone water the indol reaction was well marked at the end of 24 hours. Agar containing litmus was turned blue and did not become acid in the course of 14 days. Milk was coagulated in 36 hours. On potato there was a thin translucent greyish growth with shining surface.

Two guinea-pigs were inoculated in the peritoneal cavity with a 48-hours' culture on coagulated blood serum; both died within 18 hours. In both, on section, early general peritonitis was found, in one without any exudation, in the other with a considerable formation of lymph. Smears on cover-glasses from the peritoneum showed large numbers of bacilli apparently in pure culture, but none could be seen in preparations of the heart blood. Cultures from the peritoneum, spleen, and heart blood in both cases yielded an unmixed growth of a bacillus showing the same characteristics as that described above with well-marked gas production and fœtid odour. A third guinea-pig was inoculated in the subcutaneous tissue of the groin from a 48-hours' growth on coagulated blood serum. In 24 hours a well-marked swelling was present but without emphysema; this gradually subsided in the course of four or five days without any marked constitutional symptoms. A fourth guinea-pig was inoculated from a 48-hours' culture on coagulated blood serum obtained from the peritoneum of one of the first guinea-pigs, also in the subcutaneous tissue of the groin. In 24 hours there was a large swelling at the site of puncture with marked general feebleness; in 48 hours the swelling had increased in size, but there was no emphysema. The animal was very ill, not taking food, and the eyes were bleary. At the end of three days its general condition was rather better and it was beginning to take food again; it was, however, killed with chloroform. On section the swelling showed simply œdema with some extravasation of blood, no gas-bubbles, and no necrosis of tissue. Cultures from the swelling yielded a pure growth of the bacillus, while those from the heart blood remained sterile. Microscopically also bacilli were found in the œdematous swelling. We take this opportunity of thanking Dr. Louis L. Jenner who kindly performed the inoculations. The bacillus above described is evidently identical with the bacillus œdematis aerobius of Sanfelice, while the coccus which unfortunately failed to grow in subculture was almost certainly the streptococcus pyogenes.

DIGEST OF PUBLISHED LITERATURE.

Bacteriology.—On looking into the literature one is struck by the small number of cases recorded with a bacteriological examination and to see how firmly the idea of its almost universal association with the bacillus œdematis maligni (*vibrion septique*) is rooted in the minds of clinicians. This has undoubtedly arisen from the experimental work of Pasteur and Koch, who by inoculations with this organism first produced the condition of emphysematous gangrene; but with regard to its occurrence in man we have been able to find but very few cases in which it has been demonstrated—in fact, in most of the cases published the bacteriologist has been at pains to show that the organism he found was not the bacillus œdematis maligni. In some of these cases where no name is given we have taken the liberty of classing the bacillus under the group to which, from its published characters, it appears to belong. Further, we have left unclassified those cases in which a bacillus was seen microscopically without successful cultivation, though in some of these the author has asserted that the organism was probably the bacillus œdematis maligni. We have also tried to avoid confusion by giving each organism the name by which it is more generally known, leaving out the name of the bacteriologist with which it is often associated in the published cases—e.g., bacillus of Welch and Nuttall, bacillus of Welch and Flexner—a practice which is certainly confusing to anyone not possessing a special acquaintance with the subject.

Bacteriologically the cases of emphysematous gangrene fall naturally into two main groups, according as the organism is (1) aerobic or (2) anaerobic. These differ further in that the former probably never occur in pure culture, whereas the latter are frequently found unmixed with other organisms, and it will be found that clinically the symptoms produced differ in the two groups, the variations apparently depending on the infection or not with other, generally pyogenic, bacteria; the symptoms produced by mixed anaerobic infections approximating closely to those due to mixed aerobic ones. In both groups experiments show

that the bacilli remain strictly local, spreading only by direct extension, and do not occur in the general circulation until a short time after death. This point is one of extreme importance with regard to treatment, as it indicates the possibility, by thorough local removal, of eliminating the source of the toxins which are causing the severe constitutional symptoms.

Group 1. Aerobic.—This includes the smaller number of cases, but is of special interest in that there appears to be only one micro-organism belonging to it and also on account of the close resemblance which this bears to the members of the colon bacilli group. It appears to be identical with the organism described by Sanfelice under the name "bacillus œdematis aerobius" and also independently by Klein (*ein neuer Bacillus des malignen Oedems*), who found it by the injection of garden earth into the subcutaneous tissue of guinea-pigs, where it produced emphysematous gangrene. It is interesting to note that they entirely failed to produce this disease by inoculations with cultures of the organism, for this has been the result of all attempts with cultures from cases in man where this bacillus has been isolated, although Chavigny, by using a culture of the bacillus mixed with one of the staphylococcus pyogenes aureus, produced in a dog an abscess which contained gas and caused a large slough of the superjacent skin and surrounding tissues. Muscatello and Gangitano more recently have produced gangrene and emphysema by inoculation with bacillus œdematis aerobius mixed with proteus vulgaris. The uniform results with pure cultures have been the formation of an œdematous swelling without either emphysema or sloughing. The bacillus described above from the case which forms the text of this paper is identical with the micro-organism with which we are now dealing, with the exception that it was non-motile, but this is not a point of much importance, as Klein mentions that the motility in different cultures varies. In other respects the description there given will serve for an account of the bacillus of this group. It will be noticed that it very closely resembles the bacillus coli communis and is, as Sanfelice points out, probably a member of that group, differing only in minor points—viz., the excessive gas-production which takes place even in a medium not containing sugar such as Uschinsky agar, and also in the absence of the characteristic appearance of the colonies on gelatin. This resemblance has been noted by all those who have described it; Chavigny, for instance, aptly terms it "*un microbe très voisin de coli*," while he also suggests that it is identical with Sanfelice's organism. Chiari has recorded a case of the "colon bacillus" occurring in a diabetic patient, and Lindenthal and Hitschmann in Chiari's case and one of their own suggest that the gas-formation is due to the presence of sugar in the tissues, but probably the bacillus was the same as in the case which we have described above, when, as seen *in vitro*, sugars are not necessary for gas-production, and I have included their cases and those published by Bunge and Evans, who describe the organism they found as the colon bacillus, under the heading of "bacillus œdematis aerobius." The micro-organism most commonly associated with this bacillus is the streptococcus pyogenes, but the staphylococcus pyogenes aureus, proteus vulgaris, and others have been described, not uncommonly more than one being present.

Group 2. Anaerobic.—Here we have to deal not with a single organism but with at least two and possibly more, and among these must be mentioned the bacillus aerogenes capsulatus which has been found in both pure and mixed growths. We have arranged the bacilli in the order of frequency with which they have been found, and do not propose to deal at all with those which, though found experimentally in animals to produce gangrene and emphysema, have not been recorded as occurring in man.

1. Bacillus emphysematosus (Fraenkel). This bacillus has been isolated in a fair number of cases; it varies much in length, is stouter than anthrax, and occurs in short chains. It is non-motile, not capsulated, and does not form spores; it stains with the usual dyes and also by Gram's method. It grows slowly in gelatin without liquefaction or gas-formation, but freely in agar containing glycerine and sodic formate, with copious production of stinking gas. It is highly pathogenic to guinea-pigs, producing when injected subcutaneously a foul-smelling emphysematous gangrene, but is less pathogenic to rabbits, while mice are immune. It very closely resembles, and is probably identical with, as Guillemot has pointed out, the bacillus described by Veillon and Zuber under the name of "bacillus perfringens" which was found by them in the pus of many cases of appendicular abscess. This is a point of interest, showing that the bacillus occurs in the intestinal contents, and it may serve to explain some of those cases arising from injury without breach of surface. In this group we have included three cases by Wicklein who, however, did not give a name to the bacillus which he found.

2. Bacillus œdematis maligni (*vibrion septique*). The only recorded instances in which this organism has been isolated are the cases published by Chauveau and Arloing from an outbreak of emphysematous gangrene in the wards of the Hôtel Dieu, Paris, and one can have no doubt after reading their papers that they conclusively proved that the gangrene was due to this organism. Charrin also showed sections of tissues containing the bacillus from a donkey inoculated by Arloing. It is certainly curious that we have been able to find no other cases in which the organism has been cultivated, in spite of the general belief in its frequency, as shown by the fact that in Flügge's text-book on bacteriology it is stated that a whole series of cases in man has been published. Rosenbach in his work entitled "Mikroorganismen bei den Wund-infektions-Krankheiten des Menschen" records two cases in which he found microscopically a sporing bacillus which he believed to be bacillus œdematis maligni but which he failed to cultivate. Slater, Bremer, and Menereul also say that they saw a bacillus which was probably the bacillus œdematis maligni but they failed to cultivate it and they give no reason for their assertion. The bacillus occurs singly or in chains, is of varying length, and is somewhat narrower than anthrax. It forms spores generally in or near the middle. Its motility varies. It stains readily with the ordinary dyes and also by Gram's method. Copious gas-formation occurs in all media and gelatin is slowly liquefied. It is highly pathogenic to most animals, including guinea-pigs, rabbits, and mice.

3. Bacillus aerogenes capsulatus (Welch and Nuttall). This organism has been described in four cases, one by Mann and three by Muscatello and Gangitano. The latter authors have performed a series of very valuable experiments with the organism which they found, and they show that this bacillus, although non-pathogenic to undamaged tissues, produces gangrene with emphysema when the tissues are first rendered less resistant either by mechanical damage or by the injection of bacterial toxins. But unfortunately, they assert, as does Mann, the identity of this bacillus with the bacillus emphysematosus of Fraenkel, whereas this latter produces emphysematous gangrene when injected alone into healthy tissues in guinea-pigs, and, further, is non-capsulated. Partly for this reason, but mainly because the cases differ in important points clinically, as the authors themselves point out, from the disease which we have described above, we have thought it advisable to put these under a separate heading, both in the clinical account and in the bibliography.

Clinical.—Considerable difficulty was experienced in dealing with the cases recorded owing to the insufficient data, both bacteriological and clinical, given. The difficulties ran chiefly along these lines, which may be briefly indicated. It is very rare that the condition of the arteries is recorded and not infrequently the age is not stated. This is an important point, for the gangrene excites inflammation in the neighbouring living tissues and if the arteries cannot supply them with the extra blood demanded the gangrene becomes spreading in character. Should the tissues be otherwise below par so much the more rapid is the spread of the gangrene. The second point is that it is frequently impossible to decide whether the emphysema is due to a specific organism or due to the ordinary decomposition of dead tissues. The time of its occurrence is frequently not noted. The third point is the occurrence of anomalous cases, such as are well attested by Chavigny and Seydel.

The following is a brief outline of the lines upon which the clinical matter has been found to plan out and it is very interesting in its agreement with the bacteriology. First have been considered cases due to mixed infection; secondly, those due to pure infection; thirdly, a few remarks are given as to treatment; fourthly, some anomalous cases are described; and finally are appended a series of cases due probably to the bacillus aerogenes capsulatus.

Cases due to mixed infection.—These cases may result from the action of an aerobic organism, the bacillus œdematis

aerobius, or from an anaerobic bacillus combined with pyogenic organisms. The case that forms the text of this paper illustrates clinically those due to mixed infection excellently. Signs of both inflammation and of specific gangrene are present, the former process probably acting as a forerunner to the latter and rendering the tissues an easier prey to the bacillus. The onset occurs within 24 hours and is ushered in by great pain, a high temperature, a rapid pulse, and sometimes a rigor, and is soon followed by vomiting. The region affected is at first red, swollen, and acutely tender. Gas-formation in the tissues is noted early and the gangrene spreads rapidly. A bronze discolouration is seen round the gangrenous patch and precedes the gangrene as it spreads. In this area there is no gas-formation and the tissues do not crepitate. The spread of the gangrene may be seen in two hours and is sometimes much quicker than this. If untreated the patient usually dies on the third or the fourth day from septic intoxication. The smell of the gangrene is frequently very foul or it may resemble that of rancid butter. This form of gaseous gangrene is naturally the commonest, from the mode of infection—by earth, dirty wounds, compound fractures, &c. Some have assumed that the bacillus coli communis is the cause of gaseous gangrene in diabetes and that the presence of this latter disease is necessary for the bacillus to produce the former. From the description of the organism by Lindenthal and Hitschmann it is most probably the bacillus œdematis aerobius which produces gas in all media and the presence of carbohydrates is unnecessary. To this variety of gangrene the name of "coli-gangrene" has been given. But it is most probable that these cases are examples of that which has been described above and with which they agree clinically.

In connexion with diabetes it may be well to refer to some difficulties that may arise. In these cases the arteries are diseased and therefore cannot respond to the extra call for blood demanded to form the inflammatory line of demarcation. The tissue at that point dies and the gangrene becomes spreading in character, which is further increased by the bad trophic condition of the tissues, which are themselves below par and owing to the sugar afford excellent pabulum for the growth of organisms. It is, in consequence of the last consideration, easy to see that decomposition will be very rapid and that the gangrene may present the appearance, locally at least, of the acute emphysematous variety. This similarity is further increased by the presence of the bacillus coli communis and its relatives amongst other organisms, which have been described as producing specific gangrene.

Cases of mixed infection with anaerobes are apparently less common and only one clinical description could be found—viz., by Guillemot—which does not differ from the above. Other cases are mentioned by Fraenkel, Lindenthal and Hitschmann.

Cases due to pure infection.—Cases of pure infection are invariably due to an anaerobic bacillus and have not infrequently been recorded, but unfortunately full clinical details of the individual cases are not given. The onset, as in the inflammatory variety, appears usually within 24 hours of the accident. One of the earliest symptoms is great pain in the part affected, accompanied by swelling and gas-formation. The signs of inflammation and suppuration are entirely absent and the part is usually pale, swollen, and emphysematous, with the blue veins standing out like the veins in a piece of marble. The part is very painful, but later it becomes anæsthetic. The circulation in the veins becomes stopped and not till then can bubbles of gas be seen in them. If the part is still left it rapidly becomes offensive and undergoes decomposition. The spread of the gangrene is extremely rapid and has been variously estimated by authors, as has that of the mixed infection, from one-half to two inches per hour. The rate of spread of the pure infection is naturally not nearly so easily estimated as of the mixed infection. Constitutionally the patient shows signs of a profound toxæmia. The temperature is sometimes slightly raised to 100°, but more frequently it is about normal and not infrequently it is subnormal. The pulse becomes progressively more and more rapid and small, but occasionally it may be quite slow or normal in rate. The mental condition also may differ from that of the mixed infection in that the patient seems to be less frequently delirious and in some cases is quite clear in his mind until near the end, which, as in the former type, is usually ushered in by delirium, vomiting, and diarrhœa. Even in the extensive literature that it has been our lot to consult we have been unable to find recorded, with full clinical details and a reliable bacteriological examination, a case of pure infection. The above description is mainly based upon that of Lindenthal and Hitschmann who had the good fortune to study four cases of pure infection.

The above description of cases of pure infection is founded upon those due to the bacillus emphysematosus. Recorded cases due to the bacillus œdematis maligni are rarer. Rosenbach has described two doubtful cases. Chauveau and Arloing have described some cases, but they show no marked differences from those due to the bacillus emphysematosus.

Treatment.—With regard to treatment little can be said except that early amputation should be performed, and this is further emphasised by the strictly local infection. One word of warning may be given from the case reported in this paper. Lindenthal and Hitschmann say that the infection goes on chiefly along the lymphatics and therefore a mistake was made in using a larger internal flap in the first amputation in our case. Cases have been cited at different times of amputation through emphysematous tissues. It seems doubtful if such an operation could result in the patient's recovery. And where such a result is recorded one is inclined to regard the case as one of putrefactive emphysematous gangrene and not specific. On the other hand, quite a number of cases have been recorded in which gangrene has recurred in the amputation stump and has been followed by recovery. Guillemot's case may be cited, as also may that of Tubby and Wright and the case in this paper. The amputation removes a very large amount of the manufactory of toxin and allows the patient to recover, as is shown by the immediate improvement. Amputation through the bronzed part beyond the gangrene may be good practice, though suppuration, as the bronzing is produced by the septic organisms in mixed infections, is sure to happen. This was the case with that dealt with by Tubby and Wright and also in our case. In the cutting away of the flaps at the fourth operation in our case bronze staining was left on the neck and quickly disappeared. Anti-streptococcic serum may be injected possibly with advantage in some cases, especially if the presence of a streptococcus has been proved. These organisms may fulfil the rôle of forerunners and injure the tissues, thus rendering them an easier prey to the specific bacillus. The point may certainly be raised as to the need for the performance of a second amputation for recurrence of gangrene in the stump. A few cases have been recorded of recovery following renewal of the gangrene, but many patients have died from the recurrence. Therefore it may be urged upon general lines that secondary amputation may be performed when the situation of the recurrence allows, and failing this, incisions, drainage, and disinfection. Large and hot dressings of some disinfectant like chlorinated soda are also valuable. The treatment for the peculiar pittings which were noticed in the case here described has been mentioned in the account already given.

One paper has been written upon the serumtherapy by Leclainche. He deals entirely with the subject from a veterinary point of view and with the serum derived from cases immunised with cultures of the bacillus œdematis maligni. As this bacillus is rarely found in the emphysematous gangrene of man the paper is of little practical value to us. The veterinary text-books are very silent upon the subject of gaseous gangrene and this is to be expected as it has been found experimentally that many animals are refractory to inoculation experiments.

Anomalous and subacute cases.—Besides the above examples of pure and mixed infection and the various clinical types of an acute gangrene a number of cases exist in which the clinical characteristics are different. Chavigny has suggested from a study of his case that these were cases of subacute gaseous gangrene and also that they arose from auto-infection through the blood and probably from the bowel. There must be a quantity of records of such cases, but owing to the lack of the important details it has been impossible to include them in the bibliography. The usual difficulty is to decide whether the emphysema is the result of ordinary putrefactive changes or whether it is due to a specific gangrene. Examples of such cases are well worth reproducing.

A male, aged 21 years, was thrown from a horse on April 24th, 1896, and sustained a comminuted fracture of his left femur and fracture of his left tibia and fibula; neither injury was compound. There was no pulse in the anterior or the posterior tibial arteries. On the second day the limb became warmer and the pulsations of the arteries were noticed after 48 hours from the accident. The limb progressed most

favourably save for some loss of sensation. On the fifth day the patient had some slight rise of temperature, but it was not until the twelfth day that gangrene appeared on the foot and was heralded by rise of temperature and the usual constitutional symptoms; locally it was characterised by early gas-formation and was both rapid and spreading. Amputation was performed through the knee-joint on the fourteenth day—i.e., within 48 hours of the onset of the gangrene. Three days later suppuration and gangrene recurred in the stump and the patient became jaundiced one day later—viz., on the eighteenth day. There was little or no fever throughout the illness, the appetite was good, and the mental condition was clear and active until the death of the patient, which occurred on the twenty-fourth day after the appearance of the gangrene. Bacteriologically an aerobic bacillus was found in pure culture.[1] Chavigny points out that throughout the course of this case the symptoms were all subacute as compared with those of *gangrène gazeuse foudroyante*. But a bacillus was isolated which agreed on all points with some of those obtained from the clinically acute cases. He also found experimentally that the virulence of the bacillus was increased if septic organisms were injected with it. He says that this subacute form is different in its causation and symptoms from the ordinary acute cases, and is produced by auto-infection probably from the bowel. Seydel,[2] describes a somewhat similar case but which was more subacute than Chavigny's. A man received an injury without wound to his foot. Gangrene did not appear until the thirteenth day and did not spread rapidly, so that amputation was not performed until the twenty-fifth day. Death occurred on the thirtieth day. Bacteriologically immense numbers of streptococci and staphylococci were found, but he failed to obtain any other organism. As he makes a special point of the very early appearance of emphysema in the tissues there must have been some specific gas-producing organism present. The gas was present in large quantities. Milliard and Manley may be mentioned amongst a large number who record somewhat similar cases, but owing to the lack of full bacteriological and clinical data little can be made of them. It is interesting to note that no subacute case of pure infection has been recorded.

Cases probably due to the bacillus aerogenes capsulatus.—There is still another set of cases anomalous clinically and of which the bacteriology is not quite definite. These cases are reported as being due to the bacillus aerogenes capsulatus. Muscatello and Gangitano have published two cases of pure infection and one of mixed infection, as has also Mann. These cases are briefly reproduced.

Pure Infection.

CASE 1.—A healthy man had his popliteal artery tied and an aneurysm excised. The gangrene appeared within 36 hours. The temperature rose to 105·4° F. and emphysema was noted. On the second day after the gangrene appeared the leg was amputated through the thigh which was followed by recurrence of gangrene next day. The wound was opened up and disinfected, the man recovering.

CASE 2.—A woman, aged 45 years, underwent nephrectomy through the loin. On the fifth day the temperature rose to 100·4° F., on the sixth day to 101·4°, on the eighth day to 103·8°, and she had a rigor. Free incision, lavage, and drainage were done, after which the temperature at once rose to 106°, but she recovered.

The characteristics of this gangrene with pure infection are given as follows: (1) early emphysema and toxæmia; (2) absence of inflammation; and (3) very little tendency to spread. It differs from the cases of pure infection already described in that the latter show (1) great and rapid spreading; (2) apyrexia in contradistinction to temperatures of 105·2° and 106° F.; and (3) that the gangrene does not yield easily to incisions and drainage, thus being of infinitely worse prognosis. On the other hand, they agree in the early and great emphysema and the absence of signs of inflammation.

Mixed Infection.

Muscatello and Gangitano have published one case.

CASE 1.—A man, aged 39 years, sustained a fracture of the os calcis and hæmatoma of the dorsum of the foot, which was incised. Within 24 hours there were swelling and inflammation of the foot and high fever. During the next three days the gangrene, which was emphysematous, spread nearly to the knee and on the fifth day the knee crepitated. On the sixth day amputation was performed through the thigh. 36 hours after the operation there was recurrence in the stump with fever and inflammation. The wound was thoroughly disinfected and the patient recovered. In the amputated limb were found streptococci, staphylococci, and the bacillus aerogenes capsulatus. The authors class this case with their others due to mixed infection with streptococci and anaerobic bacillus.

Mann in the "Annals of Surgery" also records a case.

CASE 2.—A man, aged 47 years, had a blister on his hand for one week and then it began to swell, accompanied by an acute onset and a rigor. On the first day incisions were made and improvement followed; the temperature was 102° F. On the second day the temperature was 99·2°; the hand became very painful on the third day. On the fourth day the patient had two rigors with a temperature of 105·5°. Extensive incisions were made and the limb was placed in a hot bath of perchloride of mercury. Six hours later the temperature fell to 104°; nine hours later it was 103°. On the fifth day the temperature was 102°. In three days' time the sloughs separated and the wounds slowly healed. A bacteriological examination yielded cultures of streptococci and the bacillus aerogenes capsulatus.

These cases of mixed infection with the bacillus aerogenes capsulatus differ from those of pure infection in that they are more spreading in character. In fact, the cases of mixed infection approximate more closely to those due to mixed infection above described than do the corresponding ones due to pure infection. In both cases the gangrene recurred in the stump and yielded to disinfection, recalling the similar result in those due to pure infection of the bacillus aerogenes capsulatus. The influence of the septic organisms is shown by their causing the mixed infection to be the more spreading in that the tissues are first injured. This emphasises the point already made, though it is doubtful if the presence of septic organisms renders the mixed infections previously described more rapid than the pure infections. In both varieties of cases, the pure and the mixed, the gangrene due to the bacillus aerogenes capsulatus is of an infinitely better prognosis than is that due to the organism just described.

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(* We have been unable to obtain this paper and cannot vouch for the accuracy of the reference, but a good abstract is given by Chavigny.)

[1] Chavigny: La Presse Médicale, July 16th, 1898, p. 26.
[2] Münchener Medicinische Wochenschrift, 1888, xxxv., p. 41.

DIPHTHERIA AT PENARTH.—In consequence of a severe outbreak of diphtheria at Penarth the district council offices have been fitted up as an isolation hospital. This is the second time that this building has been utilised for this purpose.

FIBROID TUMOUR AS A COMPLICATION OF PREGNANCY AND LABOUR.

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THE following two cases of the complication fibroid tumour and pregnancy which have been under my care during the last year I have thought of sufficient interest to record, from the diversity of the symptoms produced and the line of treatment necessitated.

The site of the tumour was about the same in each case, yet in the first case there was nothing during utero-gestation to lead up to the diagnosis of its presence, the symptoms appearing with the onset of labour, associated with eclampsia, sapræmia and septic peritonitis following, both attributable to the presence of the tumour. In the second case the tumour produced its symptoms early (at the third month), necessitating abdominal section and enucleation of the tumour, and it is remarkable from the fact that, notwithstanding active manipulation of the uterus at the time of operation, the pregnancy went to term and a full-time child was born.

CASE 1. *Labour complicated by puerperal eclampsia; fibroid tumour; sapræmia; septic peritonitis; abdominal hysterectomy; recovery.*—A woman, aged 38 years, a primipara, was admitted to the Lying-in Hospital, Liverpool, on Nov. 30th, 1899, being sent by Mr. W. R. Main of Heswall, with the history that the patient was at about the full period of utero-gestation, and had been seized with convulsions on Nov. 29th and that there was a tumour in the abdomen. The patient had travelled from Heswall (10 miles) in an ambulance carriage, and when admitted was only partially conscious, could not be roused to answer questions, was restless, especially when touched, and occasionally moaned as if in pain. Abdominal examination presented a full-time uterus in which occasional contractions were felt. In the right iliac fossa, close up to the uterus, reaching a point on the level of the umbilicus and seeming to pass down into the pelvis, was a hard tumour which appeared to be fixed to the right side, and was dull on percussion except at its upper border, where the note was resonant. Per vaginam the cervix was felt high up and admitted the tip of the forefinger. No urine had been passed, but there were no fits. The diagnosis was that of a renal or an ovadian cyst complicating the labour, and as her condition seemed better than when Mr. Main had last seen her she was given 30 grains of chloral and bromide with 10 minims of tincture of digitalis every four hours. On Dec. 1st she had had a fairly good night; she had had no fits and had passed 14 ounces of urine, the specific gravity of which was 1015, acid, one-third albumin, and no blood or casts. When seen at 9.45 A.M. she was lying on the left side, unconscious; she was breathing heavily; the face was cyanosed, conjunctival reflex was present, the pulse was 148, and the temperature was 98·6° F. Per vaginam the cervix was now obliterated, the os was high up and far back, dilated so far as to admit the finger, and was rapidly dilated so as to admit the whole hand. The presenting part was the vertex, or rather a portion of it represented by the scalp, with a parietal bone; no sutures or fontanelles could be distinguished but a wide membranous space on either side of the parietal bone; a second parietal was felt posteriorly and to the left side; an ear was felt high up on the right side of the pelvis. There was no bulging of the abdominal wall above the symphysis pubis, and the diagnosis was that of a "dead fœtus." The labour was allowed to progress unaided until 4.45 P.M. when, there being no advance since morning except that the soft vertex had been pushed through the os like a bag of membranes, forceps were applied above the brim and delivery was easy; there was delay with the shoulders and the third stage (no hæmorrhage and no uterine contraction), in consequence of which the hand was introduced into the uterus, where the placenta was found lying, already detached, and was removed. The uterus was douched with iodine water (four minims to the pint). The pulse was 108. The patient was more conscious. On Dec. 4th, the lochia being offensive, a vaginal douche of permanganate of potash was given three times. The temperature was 101° on the next day, the 5th. As her condition gave rise to some anxiety the uterus was douched and curetted, offensive blood-clot being removed, and the uterus was packed with double cyanide gauze. The position of the tumour was now in the middle line of the abdomen and was freely moveable; it was of a soft solid consistence and could not be felt from the vagina, so that diagnosis of a dermoid ovarian tumour with a long pedicle was made. On the 6th the patient was better. The temperature was 99·4°, and her pulse was 118, but there was marked tenderness over the left side of the abdomen. On the 8th, during the night, the patient had a rigor and the temperature went up to 104·2°, and the pulse to 140. At 10 A.M. the pulse was small, 132, and the temperature was 102·4°. The abdomen was much distended, tympanitic, and tender, especially over the tumour. The patient was obviously suffering from septic peritonitis, which was thought probably to be associated with a twisted pedicle; if left alone she would certainly die, and her only chance was abdominal section. My colleague Dr. A. J. Wallace, being in the hospital at the time saw, her with me and agreed with this opinion, whereupon we arranged for operation the same afternoon (the 8th).

The abdomen was opened by the usual median incision and on opening the peritoneum offensive blood-stained serum escaped. Passing the hand into the abdomen the tumour was found to be a fibroid attached to the fundus of the uterus by a broad pedicle, and was lying retroverted in the pelvis, where it was adherent by recent peritonitis and was with difficulty separated from the intestines and the floor of the pelvis. The incision was prolonged up to the umbilicus to enable the tumour to be withdrawn, and in delivery of the growth a small slough was found where the tumour was bent upon the uterus, and during manipulation my finger passed into the wall of the uterus at this point. There were several smaller fibroids in the walls of the uterus, and feeling that the operation should last as short a time as possible hysterectomy was preferred to myomectomy as presenting the best chance for the patient. Baer's operation was performed, the stump of the cervix was covered in with peritoneum, and the broad ligaments were sutured. An opening was made through the pouch of Douglas into the vagina, and gauze was packed from the peritoneal cavity to the vagina, and further drainage was provided for by a glass tube from the lower angle of the abdominal incision. The peritoneal cavity was thoroughly cleansed with saline solution and the wound was sutured with silkworm gut and dressed with double cyanide gauze. On Dec. 9th the patient slept for two and three-quarter hours during the night. She complained of severe abdominal pain; the abdomen was swollen and tender, but the temperature was normal and the pulse was 128. The tongue was dry. On the 10th the dressing was changed; two drachms of sero-purulent offensive fluid were removed through the drainage-tube. On the 12th the dressing smelt offensively; it was removed and a sero-purulent discharge oozing from the abdominal incision was found. The sutures were removed and the whole line of incision was one large putrid slough going down to the muscle. This was brushed over with pure carbolic acid, and leaving the wound gaping bran and borax poultices were applied. In three days (the 15th) the wound cleaned up, and there was a free drain through to the vagina. From this she rapidly improved and left the hospital quite well on Jan 5th, 1900.

One point in the convalescence is of value. A few days after the operation, finding the pulse remaining quick and small and feeble, 10 minims of tincture of digitalis were given every four hours and continued; one morning, however, the temperature fell to 97° and the pulse rose to 160, and was intermittent and barely perceptible. Her skin was moist and her appearance was dusky; there was vomiting of bilious fluid. The tongue was dry and brown. Food had been pushed, so that the attack looked like either an acute septic absorption or stomach derangement, and it was felt that probably the digitalis was upsetting her. The digitalis was discontinued and a dose of calomel was given and the patient starved for 24 hours and rapidly improved.

The points which I wish to bring under notice are, firstly, diagnosis. From the position of the tumour on the right side and in the lumbar and iliac regions, from its apparently being fixed, and that the bowel note was found in front of it, it seemed to present the features of a renal tumour. Mr. Main, however, had stated that he had moved the tumour and had pushed it out of the pelvis, therefore I judged it was a tumour with a long pedicle and possibly ovarian. Then after delivery the great mobility of the tumour and its soft solid feel gave me the impression of its being a dermoid

ovarian tumour. Secondly, the position of the tumour in preventing the complete uterine contraction after delivery allowed of the collection and retention of blood-clot which gave rise to the sapræmia. Thirdly, the extreme virulence of the septic peritoneal effusion as evidenced by the slough of the abdominal wall in the track of the incision. Fourthly, the slough at the point of strangulation of the pedicle as the source of septic infection. On microscopical examination the tumour was a fibro myoma growing from the posterior wall of the uterus and weighing 3 lb.

CASE 2. *Pregnancy (three months); multiple fibroids, simulating retroversion of the gravid uterus; enucleation; pregnancy uninterrupted.*—The patient, a woman, aged 30 years, was seen in consultation with Dr. Ll. A. Morgan on Jan. 16th, 1900, with the history of sudden abdominal pain, three months' pregnancy, and retention of urine. Per vaginam the cervix was high up in the pelvis and to the left side, and filling the pelvis was a hard, smooth, fixed swelling, which was very tender on examination. The uterus was felt to the middle line and was reaching as high as the umbilicus, ballottement was elicited, and the uterus appeared to be separate from the tumour. The diagnosis of uterine fibroid in the posterior wall of the uterus was made, and as the tumour completely blocked the pelvis and could not be pushed up, the line of treatment seemed to be induction of abortion or operative interference. The patient was admitted to the Hospital for Women and when examined under an anæsthetic the tumour did not feel so solid, and from the facts that she had become pregnant almost immediately after marriage and that a fibroid uterus is not readily impregnated we persuaded ourselves that the tumour was an impacted dermoid ovarian, and decided to remove it.

Abdominal section was performed on Jan. 30th, 1900, and on introducing the hand the uterus was felt to contain several small fibroids, and the tumour in the pelvis was also a fibroid. The pelvic swelling was pulled up to the abdominal incision, thus rotating the pregnant uterus to the left, the tumour being situated on the posterior wall of the uterus, above the level of the internal os, and was of the size of a large orange. This was enucleated easily; the bleeding was free and was controlled by sutures. The site of enucleation measured in length three inches, and in breadth one and a half inches, and the base of the tumour was fairly deeply in the muscular tissue. The muscle was brought together by silk sutures, thus closing the gap. Two smaller growths were also enucleated, one of the size of a walnut and one of the size of a hazel nut. There was such free oozing after all had been sutured that the abdominal incision was enlarged and the uterus was brought out when all bleeding points were controlled. The tumour was fibroid; its weight was 1 lb. 2 oz. The pelvis was flushed with hot water and the abdomen was closed. No drainage was employed.

Convalescence was rapid and the patient went home and on to full term without any inconvenience. Dr. Morgan attended her during her confinement at the Lying in Hospital, on July 31st. The labour was tedious, the first stage being prolonged over 24 hours, and the waters had escaped early. The cause of delay was rigidity of the cervix which did not yield to the various measures employed—viz., chloral, phenacetin, douching, and rest. The pulse and temperature rising and the patient becoming restless and tired, forceps were applied, and Dr. Morgan described the condition of the cervix as being like to "a pulling against a piece of leather." Labour was completed after traction for nearly two hours, the child never breathed properly and although the heart was beating and artificial respiration was kept up died in about 15 minutes. The puerperium was normal, and the patient when seen by Dr. Morgan during the month of October last was quite well.

Liverpool.

NEW HOSPITAL FOR BOURNEMOUTH.—On Nov. 6th the new Royal Boscombe and West Hants Hospital was formally opened by Lady Wills (wife of Sir F. Wills, M.P.). The hospital comprises two pavilions, one named the "Empress Victoria Ward" and the other the "Wills Ward." Each ward contains 10 beds and cots. The hospital has been erected at a cost of over £8000, of which £6000 have been subscribed, including £1000 from Sir F. Wills. The portion of the institution now opened is about half of the proposed scheme, as it is intended to add another ward and an administrative block.

THE MICRO-ORGANISMS OF VACCINE MATERIALS.[1]

BY J. B. BUIST, M.D., F.R.C.P., F.R.S. EDIN.

I FEEL rather diffident in saying anything about the micro-organisms of vaccine lymph, and I think that I have made the title of my paper rather too wide. I should have said "Some Micro-organisms of Some Vaccine Materials," and it might have been more correct, because I do not profess to be able to show the whole of the micro-organisms which have been separated during the last 15 years by innumerable scientific observers.

The subject of micro-organisms in lymph, both vaccine and variolous, has occupied the attention of scientific men for the last generation. I may mention that in 1868 Keber described micrococci in lymph. This was followed by the exhaustive researches of Cohn in 1872 with reference to vaccine and variolous lymph. Cohn described the micro-organisms to be found both in vaccine and variolous lymph. He found many minute spheroidal bodies in fresh lymph and subjected them to minute observation. In course of time he found that they showed pairs and fours and groups of cocci; but he was not sure whether these secondary organisms which appeared in the lymph were derived from the primary spheroids or not. Then Klebs described cocci in variolous lymph chiefly in the form of tetrads. In 1877 Godlee cultivated lymph. He showed various cultured materials with the avowed object of producing an artificial vaccine, but failed when he tried to inoculate this in men and, I think, in animals. In 1883 the Grocers' Company of London offered a prize of £1000 for what we may shortly call the artificial cultivation of vaccine lymph. This inquiry was to be carried out as regards lymph so that it might be cultivated apart from the animal body in some media not otherwise zymotic, the method to be such that after any number of generations, so far as could be tested in the time, the product was to prove of equal potency with standard vaccine lymph. Quist, in 1884, described a method of cultivating vaccine lymph. He used blood serum, glycerine, and distilled water in equal parts, with carbonate of potash (1 in 300). He found minute scales to appear on the surface of this culture fluid which he thought were the vaccine specific organisms. He inoculated these and claimed to be able to produce vaccinia by these cultures. These observations were of great value and had the cultivations of Quist been pure, or had they produced material in sufficient quantity, he might have claimed the prize of the Grocers' Company.

My own connexion with micro-organisms of vaccine lymph dates from that time. I was practically pitchforked into the position of vaccinator to one of the dispensaries in Edinburgh, and I had to study vaccine lymph. In the course of my self-education I found that it was by no means easy to propagate pure vaccine lymph in the human subject. I had to supply lymph to the Local Government Board and I found that practically some two-thirds of my laboriously-filled vaccine tubes were rejected by a gentleman who presided in the central office in London over this particular department. I actually went up to London to see what this deficiency in the quality of my lymph meant and I was informed it was opaque—that the lymph was rejected because of opacity. I interviewed the principal medical officer of the Local Government Board and upon inquiring of him what opacity meant he confessed that he did not know, and I returned home determined to find out. So my observations on lymph were not undertaken with the view of finding out the vaccine organism or of claiming this prize of the Grocers' Company, but with the object of determining for my own satisfaction the nature and cause of opacity in lymph. It looks a very simple thing. I had some experience of histology and had devoted some attention to pathology, and it seemed as if an animal fluid was quite a legitimate object for a pathologist to investigate. But it is by no means such an easy matter as it looks. I

[1] A paper read at a meeting of the Scottish Microscopical Society held at the Philosophical Institution, Edinburgh, on May 18th, 1900.

began by making cover-glass preparations, also simple preparations from tubes. I looked at them fresh and I stained them and could make nothing of them. I saw certain things in the microscope but could not tell what they meant.

Then the next point was that it was evident that unless bacteriological cultivations were made it would be impossible to explain these appearances in lymph. I had the advantage at that time of the assistance of Mr. Arthur W. Hare, who, along with Dr. Sims Woodhead, had just started bacteriological work in Edinburgh. Mr. Hare, as some of you may remember, was Professor Chiene's chief assistant, and he, with the professor's consent, very kindly undertook to make the cultivations for me. I did not profess to be a bacteriologist, but I watched them and tried to explain. Professor Chiene very kindly placed his laboratory at my disposal for the purpose of the inquiry and was kind enough to suggest that the cause of opacity was the growth of a germ. Suggestions are all very well, but they are not so easy to prove. This suggestion, however, turned out to be perfectly correct. It was based partly on Tyndall's work on "Floating Matter of the Air," partly on Pasteur's work, and partly on Professor Chiene's work regarding the sterility of beakers filled with some infusions which he had undertaken in the course of his antiseptic investigations. Now, it seemed that the tubes might be the cause of opacity in lymph. If germinal matter occurred in commercial tubes that might so contaminate the lymph that a cultivation would take place and opacity result. This, however, was found after a prolonged series of experiments to be rather unlikely. We had a large series of tube experiments and these experiments were found to show that the amount of germinal matter in ordinary commercial tubes was comparatively small and was not likely to produce the universal opacity found in vaccine lymph.

This is rather an interesting anniversary for me, because on May 18th, 1885, Mr. Hare and I made our first vaccine cultivation, and it is a curious circumstance that I should happen to be discoursing on the nature of cultivations just this day 15 years after. We used all bacteriological precautions. Mr. Hare was thoroughly conversant with all the methods and we (with his assistant "Thomas") met at the Western Dispensary, Ponton-street, with a barrowful of armamentaria, a steam spray, tubes, lamps, and everything. Now the surface of the skin was thoroughly washed and sterilised. The vesicles were opened, and Mr. Hare made the cultivations. We used several nutrient media, agar agar gelatin, Koch's nutrient gelatin, hydrocele fluid sterilised, and sterilised potato. The result was that we had several kinds of growths. We made a good many vaccine cultivations—I should think about 40—and they were all going on, either at the same time or slid into one another. The first cultivation was on May 18th and the second on June 18th or something like that. The usual methods of incubation were employed. All I have to say is that the general character of the growth within the first four days was white. Gradually there was a change of colour in the growth from white to yellow—in some cases orange, in some cases brown. These growths did not in some cases liquefy the gelatin, and what we now know is that colonies of cocci were scattered through the films where the needle had passed. After a few weeks we found that there were three or four distinct forms of growth in vaccine lymph. Those cultivations which did not show a distinct mode of growth were rejected as being contaminated. At last I selected four typical growths which seemed to me to show, if not a pure cultivation, certainly a cultivation which was next door to it. These were white, yellow, orange, and brown, either in agar agar gelatin or in Koch's nutrient gelatin.

The next thing was to try experiments with these materials. I had in view the fact that with a minute quantity of natural vaccine lymph I could produce four distinct vesicles with the greatest ease and certainty. Remember, all this time I am only talking of humanised lymph. I had at that time no experience of animal lymph. Now it seemed to be a remarkable thing that, if a *materies morbi* could be grown in these nutrient materials the same thing could not be produced by vaccination with these artificial cultures. I first experimented on calves and found no local result produced in my first case. Calves drink a lot of milk and are expensive to keep, and I had in my mind Ferrier's experiments on localisation of function in the brain, and I thought that monkeys, from their resemblance to a human subject, might show results much more like those which we observed in infants. I accordingly got a consignment of monkeys and vaccinated one to see if they could be vaccinated, and then I vaccinated others with the vaccine cultivations. To my disappointment there was no result. On still harking back to the natural material it seemed as if the attempt at artificial cultivation had so modified that natural material that it could not produce a local effect. Therefore the fact dawned on me that vaccine lymph of itself was probably a modified material. It was probably modified small-pox, and we might say that we had only modified a modification of the true virus of which we were in search. This failure to inoculate with these primary cultivations and the evident mere fact of cultivating or attempting to cultivate lymph apart from the animal body so altering the character of lymph as to cause it to lose its local effect made me devise a new series of experiments—namely, cultivations of small-pox. I had to go to London for the cultivations of small-pox. They were made through the courtesy of Dr. Birdwood, in the hospital ships at Purfleet, 20 miles down the river. Mr. Hare and I took a week's holiday, went up there, and brought away a box of small-pox cultivations. We wondered what would happen if the box got smashed on the road home, but nothing of the kind happened and we set up 70 cultivations from all stages of the small-pox vesicle, and these were observed. I stuck closely to my guns that the organisms cultivated should not liquefy the gelatin, and I found in this way that I could cultivate a white organism from variola. I did not succeed in finding yellow, orange, or brown organisms without liquefaction of gelatin, but these were seen in liquefied tubes, so it is possible that with care we might have cultivated from small-pox the yellow and orange organisms just as we cultivated the yellow and orange organisms from vaccine lymph. With reference to the calves which were inoculated with vaccine cultivations I found that something interesting had happened during my absence. On examining them I found an eruption on the back of one of them. Then a calf was inoculated with opaque small-pox matter, and an eruption was found on it, although no local result had been produced. So I came to the conclusion that there was no doubt that there was a difference between the perfect natural material and the opaque natural material which was the subject of my inquiry. I found after returning from London that these calves showed eruptions and no local effect after inoculating with primary vaccine cultivations and with small-pox lymph. It seemed, then, as if cultivating the vaccine lymph had destroyed its power of producing a local effect. This circumstance appeared to me to be so remarkable that whenever I had sufficient white variola I inoculated a monkey with it, and predicted that though there would be no local effect an eruption would take place on the animal's body. As a matter of fact, an eruption was produced in six days—that is, in about half the time taken by the constitutional eruption of small-pox to appear after it is inoculated in the human subject. As you are aware, small-pox when inoculated produces a local effect similar to vaccination, and then between the tenth and eleventh day the constitutional eruption breaks out. So far as I can see, if that constitutional eruption could be prevented there would be no difference between inoculated small-pox and vaccination. The vesicles of vaccination appear to be almost as like small-pox as they can be, with this advantage, that for the last 100 years they have been cultivated in a pure fashion by selection of material and selection of subjects.

Then I wished to know whether the cultivations of small-pox diminished in power according to their removal from the primary cultivation, and we found this to be the case, for whereas we could produce eight constitutional vesicles on a monkey with a primary cultivation, with a secondary pure culture, or so-called pure culture, we could only produce two. Then these animals were free from the power of communicating infection; they could not infect monkeys which were sent to live with them for a month.

This is wandering away from micro-organisms. But the next point was to examine these cultivations histologically. The orange cultivation showed swarms of micrococci, and probably corresponded with the brown. (I show a brown preparation under the microscope; I have lost the orange one.) If they are dim and not so brightly stained as you would wish, remember that they are 15 years old, and I have not looked at them for the last 10 years. However, they still seem to show what one wants to see—that is, the appearance of the orange and brown primary cultivation

from vaccine lymph. The yellow organism showed tetrads, and these tetrads are to be seen in the preparation, but unfortunately it is mixed with the white. The preparation was made from a white and yellow colony, or from the yellow colony, but it shows white and yellow. The third preparation is one of opaque lymph and you will see that there are colonies of organisms in it. I am sorry that I cannot show you a preparation of clear vaccine lymph. It is a most difficult thing to show and in the time at my disposal I was not able to search out what I wanted, so I can only describe the difference between opaque lymph and the clear standard vaccine lymph. In clear standard vaccine lymph you see very few organisms, or next to none. These organisms are isolated. They are very minute and they measure about the $\frac{1}{3000}$th part of an inch in diameter. The organisms of the cultivations under the microscope are 0·1 to 0·3 of a micro-millimetre according to the mode of preparation. If you roll them too much you may see the larger forms of cocci. The units of the tetrads, for instance, may vary from the tenth of a micro-millimetre to one micro-millimetre in diameter. I attribute that to defect in preparation.

The question came to be, what did all this mean? I began to look on all these different cultivations, opaque lymph, variolous lymph, and clear vaccine lymph, as different materials. All these materials were of different composition, and it was evident that the natural material had a different physiological action from the cultivated material. In trying to explain this I was confronted with the classification of bacteria. At that time bacteria were only beginning to be studied exactly and the battle raged fiercely between iso-morphism and pleo-morphism. A distinct bacterial form, according to Koch, corresponds to each infective disease, and this must be shown before it is proved that this bacterial form is the cause of the disease. At the same time he admits that the pathogenic forms which give rise to scarlet fever, variola, and vaccinia are so minute as to be difficult to recognise owing to their minuteness, and he advocates cultivations in the animal body so as to be able to show their infectivity.

Now, with these views before me—that all organisms were either spherical, rod-shaped, spirillum, or something of that kind, and that one could not pass into another; that if you said the cocci became bacilli you were a heretic; and that the thing must not grow but must always be the same—it seemed to me that there was a want of logic about the whole thing, and I rather went perhaps beyond the mark in attacking the classification of bacteria to suit my own views. I could not but see that these preparations showed different sizes of organisms. I did not know why, but there was no doubt that they did show different sizes of organisms. Then again, although they grew, it did not follow that they changed their species, and growth seemed to be a natural condition of all organisms which had life, and when they were so minute we had, as it were, to take into account their growth forms as well as the exact bacterial form which was displayed at the time that I observed them. Now the bacterial form in this clear lymph appeared to be a very minute spore. I assumed that owing to the behaviour of lymph on drying it could not be a vegetative condition of organism; that the material, whatever it was, had very strong resistant power to destruction. So, first in a communication to the Royal Society of Edinburgh, and again in a book which I published 14 years ago, I advocated the view that the organism in vaccine lymph was a spore. I also advocated, I must say more than I should have done, pleo-morphism, not the mutability of species, but the possibility of growth forms of cocci. I still hold these views, because I am not able to distinguish these from minute organisms which, say, may be produced by yeast. Pasteur showed that yeast adhered to the skin of grapes, but that as long as the grape skin was sound it took no effect. When there was a crack in the skin, however, the yeast attacked the grape and fermentation took place. I do not know the size of the grape spores, but it seems to me that between the vegetative condition of an organism and the reproductive condition of the organism there might be not only a difference of size but also a difference of action. Acting on this idea I formulated a sort of scale of growth for cocci from the minute spore of the cocci to a large form seen in lymph. If I had known as much about bacilli as I do to-day I might have said that these were spores of bacilli which we found in lymph. As a matter of fact I did say in criticising Zopf's classification that he had named three of his classes as cocci, and if one of these grew to be bacilli, they ought to be called spores of bacilli. So we come to this conclusion—that the organisms of the lymph are spores. Where, I think, I went wrong at that time was in thinking that these spores could grow in their own exhausted nutrient material. Since my observations have been published the whole subject has been thoroughly thrashed out, and it has been shown by Dr. Klein and Dr. Copeman that these white, yellow, and orange organisms are saprophytic, that they have nothing to do with the vaccine organism, and that they are extraneous organisms and are contaminations.

Now these views quite fit in with my own work. I am prepared to find that these are saprophytic organisms. What I maintained 14 years ago was, that the active principle in the lymph consisted of spores, that these cultivated spores, even if they were developments of the spores of lymph, were incapable of producing vaccinia, but at the same time that they were the cause of opacity in lymph. It is now a well-established fact that the cause of opacity in lymph is a natural cultivation of the organisms in it. I thought at the time that the spores in the lymph might develop. Since I have looked more carefully at the matter in the light of recent observations I think you cannot look for development of spores in the lymph, that there must be contamination to account for opacity, because the spores are the resting-stage of the organism, the stage at which they can reproduce themselves, and they have exhausted their pabulum by the time they appear in the vesicle, so that we cannot expect them to grow into cocci or bacilli or anything else.

Simultaneously with my own observations, Dr. Neil Carmichael of Glasgow found cocci in lymph. He considered that they were the active principle. He was able to inoculate them in 10 per cent. of the cases of children whom he had vaccinated. He did not consider that failure in 90 per cent. of the cases was sufficient to cause it to be disputed that cocci were the active principle in vaccine lymph, but that cultivation diminished their infectivity. We are possibly both wrong, but it is a remarkable fact that both Voigt and Garré have also failed to cultivate these organisms. Voigt believed that he had cultivated the vaccine organisms and could reproduce vaccinia in the calf, but he found as his generations departed from the original cultures that they diminished in potency. Garré, on the other hand, was able to inoculate calves with his cultivations, and from calves he could vaccinate children, but when his cultivations were inoculated into the human subject directly he failed.

Since the observations which I have detailed Dr. Klein and Dr. Monckton Copeman have made further observations. They have cultivated lymph in all sorts of ways and Dr. Copeman has shown that these organisms in my reports are extraneous organisms. So far as I know, they have not got any nearer the cultivation of the vaccine organism, but I am glad to see from recent papers that they corroborate my view that the active principle in an active vaccine material is a spore. They account for there being no other organism in the lymph by the fact that the organisms that produce them have probably given way to spores before they appear in the lymph, and they describe the spore-bearing bacilli which produce these spores. It is almost an induction that if you have spores there bacilli may be the cause of them, more especially as "micrococci do not produce spores" (Klein). At the same time their attempts at propagating the spores, either in the human or in the animal subject, have entirely failed. Dr. Copeman thought that he had got cultivations of his bacilli from egg and Dr. Klein has used glycerine agar and solid serum and so on for cultivating his organisms, but so far without success. The subject is one of difficulty and complexity and one can only hope to be able to put a stone in the building, which I have no doubt will be completed at some future time, by the successful cultivation of these vaccine organisms.

ACTION-AT-LAW AGAINST A MEDICAL MAN.—At the Pontypridd County Court on Nov. 7th, before Judge G. Williams, an ex-steward of the Ferndale Constitutional Club sued Dr. J. Williams for an alleged slander. The alleged slander was that Dr. Williams on April 9th had accused the man of disobedience, drunkenness, and dishonesty. The judge held that the defendant was perfectly justified in the words which he had spoken and gave judgment for him with costs.

REMARKS ON TWO CASES OF LANDRY'S PALSY.

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SINCE the attention of the medical profession was first directed by Landry in 1859 to the form of paralysis which bears his name, and the description of which was based on 10 cases, many instances more or less similar have been put on record from time to time. Authorities differ among themselves greatly as to the criteria which should determine the admission of any given case to the category of "Landry's disease." Some limit the term to a rapidly ascending form of palsy with no affection of sensation or with very slight sensory phenomena only; some admit the possibility of marked anæsthesia; while others would exclude cases with obvious changes in the spinal cord and peripheral nerves on the ground that instances exist apparently without either. From this it is clear that a more extensive pathological study of the disease may show that the term "Landry's paralysis" includes several conditions which may be related to one another but are not identical, and, like all such terms, it must be used provisionally and clinically and not as corresponding to a definite pathological equivalent.

With this preface I shall therefore narrate two cases which in my opinion are examples of the disease, and then make a few remarks on the reasons which have led me so to classify them, as in some respects they do not fit with the concise description met with in certain of the text-books.

CASE 1.—The patient was a man, aged 40 years, whom I saw in consultation with Mr. G. B. Hillman of Castleford in June, 1899. This man had always had a tendency to "throw on" his club upon small provocation, so that when some 10 days before, he complained of pains in his legs, followed on the next day by some indefinite pains in his back, there was nothing in his condition to sound a note of alarm, and it is possible, as Mr. Hillman suggested, that the march of the earliest symptoms may have escaped accurate observation. The day before I saw him, however, his legs were decidedly weak, and some hours before our consultation Mr. Hillman observed partial right-sided facial palsy. We examined the patient together. He was not looking very ill and was not suffering. He had almost complete motor palsy of his legs; when he tried to move his feet or his toes the effort was immense and the result was almost *nil*. The muscles of the trunk were weak and, although the intercostal muscles acted all the way down and the diaphragm also acted, yet the respiration was mainly of the superior costal type. The patient's hands were very feeble, especially the right hand, and there was general weakness of the arm and forearm, the movement of extension of the forearm being especially affected. The shoulder muscles were strong and the power of shrugging the shoulders was well up to the normal standard. The sterno-mastoids, especially the right, were weak. Thus the patient could not raise his head from the pillow and rotation of the head was lessened in extent, speed, and strength. There were slight dysphagia and some weakness and alteration in the voice, but no palsy of the palate. There was partial facial palsy of Bell's type on the right side, with some weakness of the right external rectus and consequent homonymous diplopia, which was constant. The deep reflexes were all abolished. There was marked anæsthesia affecting the whole of the lower extremities and the extreme lowest part of the abdomen, with very questionable affection of sensation in the arms and hands. The patient had to wait some time before succeeding in passing water, but there was no actual retention or incontinence. The pupils were equal and active. There were no trophic lesions or vaso-motor disturbances. An indefinite history of exposure to cold was made out. We gave a hopeless prognosis, which was justified, for the patient died on the following afternoon. In a letter to me Mr. Hillman wrote: "I saw him again the same evening. The paralysis of the right external rectus was much more marked than when you saw him, the throat was much more affected, and there was a good deal of difficulty in swallowing, while the chest movements were almost confined to the upper ribs. Next morning there was no movement of the lower ribs or of the abdomen. Speech was almost gone. There was slight deflection of the tongue to the right on protrusion. He had passed urine into the bed during the night, but it appears he had tried to explain his want and his friends did not understand him. He was quite unable to swallow. At two o'clock in the afternoon he remained quite conscious but could not speak; the palsy of the external rectus was now complete, the face and hands were becoming cyanosed and he was obviously dying. At 3.40 he became markedly cyanosed and he died about four o'clock with slight spasm of the face."

In this case the salient features were the premonitory pains, the rapidly developing palsy, more or less, but not *strictly* ascending in character, with some affection of the cranial nerves, loss of reflexes without marked affection of the sphincters, and decided anæsthesia of a more limited distribution than that of the motor palsy, the whole terminating in respiratory palsy in about 11 days.

CASE 2.—I was associated in this case with Mr. A. Smith of Stanningley. The patient, a woman, aged 24 years, was admitted under my care into the Leeds General Infirmary on July 1st, 1900. She was the youngest of a family in whose history no special diathesis could be made out. She herself had had chorea on three occasions about 11, 13, and 15 years previously and she had had influenza some time in 1898. She had been robust and muscular. She had been confined of her first child three years before and this was followed by a miscarriage 12 months after, and this again by a living child in August, 1898. The labour was normal and she did well for 10 days. Then the temperature went up to 103° F. and remained high for four days, and she made a slow recovery and never looked herself again. Four months after her confinement she said that her work was a burden to her, and her child was weaned. She dated her illness from about one month prior to her admission into the infirmary, when she noticed that the palm of her left hand was numb. The numbness spread up the arm and at the end of a fortnight it had reached the left side of the neck and the head. Here it stayed for a few days and then began to descend the left side until it reached the groin. Thence, after a short delay, it advanced further down the limb, which in turn became numb in its whole extent. Her condition at the time was well described in a letter from Mr. Smith, who wrote: "The anæsthesia for both heat and pain was very well marked over the whole of the arm and forearm, less marked on the inside, and still less on the left leg; the right side was quite normal. The muscular sense as tested by weights was normal on the right side, distinctly impaired on the left." In about 48 hours numbness began on the right side, first in the hand extending up to the elbow, then in the right leg, which was affected at first on its inner and anterior aspect, the numbness then extending down to the toes. All these sensory phenomena came on before the motor affection, which was gradual in onset, and it was by no means clear whether the arms or the legs were the first to be affected. On admission into the infirmary she expressed herself as feeling quite well so far as her general health was concerned. There was great motor weakness; she could walk with assistance, but dragged the left leg. The grasp of the left hand was much impaired, and the muscles generally were very flabby, especially on the left side. The respiratory movements were normal. The deep reflexes were present and the left knee-jerk was slightly increased The sensory phenomena were the more marked. There was marked, but not complete, anæsthesia everywhere, except on the face, and that to all forms of stimulation. She complained of her feet feeling as cold as ice, yet they were found quite warm to the touch. On the 13th I dictated the following note to the clinical clerk: "To-day we find profound anæsthesia over almost all the cutaneous areas supplied by the spinal nerves, though a prick can be felt in the left leg and gentle pinching can be felt in the left upper arm, though not in the shoulder of the same side. The cutaneous areas supplied by the cranial nerves appear to be normal. To-day, also, we note the greater weakness of the left arm as compared with the right and the increase of patellar jerk. The left side of the chest and the left rectus abdominis do not act so well as the right, and generally the motor weakness is greater." On the 28th she went home at her own request. On August 5th and 6th she had to have her urine drawn off, and on the 7th she passed both urine and fæces into the bed. Her appetite remained good. On the 9th the articulation was affected and there was dysphagia. This got worse and on the 11th her breathing became laboured and she died from asphyxia.

The duration of the illness was thus much longer than

in the case of the first patient described, lasting as it did about two and a half months from the first appearance of the numbness. Sensory phenomena were the earlier and the more pronounced, and at one time were so markedly unilateral as to lead me strongly to suspect functional disorder, but on examination I found that there were no deafness, no limitation of the field of vision, and no colour-blindness on the anæsthetic side—symptoms which, as Charcot points out, are fairly constant in hysterical hemianæsthesia. The spread of the anæsthesia was most irregular, while a striking feature in the case was the persistence of the deep reflexes and their actual increase on the left side.

In both of these cases I am confident that spinal myelitis, in the ordinary sense of the term, may be safely excluded, for the paralysis, both motor and sensory, was so marked and extensive that, if due to this condition, it must have been associated with a more unquestionable affection of the sphincters and with at least some tendency to the occurrence of bedsores.

There is no doubt that the term used by Landry, "acute ascending palsy," carries with it the conception of a disease beginning below and affecting the parts in an upward direction until, the respiratory centres being affected, death ensues, and in many cases this doubtless is the course of the disease. Ross, however, holds that Landry used the term "ascending" not in this sense, but to indicate that the palsy was centripetal, affecting, that is, the distal part of the limb before the proximal. If, however, we bear in mind the peculiar relation of the spinal nerves to the limbs, which is such that those muscles which act on the distal part of the limb are innervated from a lower part of the spinal cord than that which presides over the more proximal muscles, we shall find that, even if it were an accurate conception of the disease that it is a process invading the spinal cord from below upwards, this tendency of the distal part of the limb to be affected before the proximal would be just what might be expected, and so the paralytic phenomena would be ascending both in the ordinary sense of the term and in that as interpreted by Ross. There are, however, some cogent reasons against an ascending spinal lesion—I use the term in its widest sense to include toxic processes—being an essential pathological conception for the clinical syndrome. Thus, in some cases, as in that of the naturalist Cuvier quoted by Fagge, the upper limbs were affected before the lower; in many cases the arms, affected *after* the legs, were affected *before* the abdominal muscles, and in my first case, with great weakness of the legs and arms, there was normal strength of the muscles of the shoulders, while the ponto-medullary centres, or the nerves leading from them, were affected, as indicated by the palsy of the sterno-mastoid, of the face, and of the external rectus. Most cases, however, are certainly characterised by a general extension of the paralysis from below upwards, as, indeed, my first case strikingly shows; but a progressively upward extending lesion, structural or nutritional, of the spinal cord, will not by itself account for all the phenomena of the disease, and in many cases would be strikingly at variance with those which are present.

By those who incline to the view that Landry's palsy must find a place in the class of peripheral neuritis or in a toxic condition affecting chiefly the peripheral nerves, it is pointed out that the little which is known of its causation points in that direction, for alcohol, exposure to cold, and exposure to the poison of the exanthemata, are probable causes of each, while the existence of splenic and glandular enlargement suggestive of some toxic process is common to both. This is certainly the view which commends itself most to my mind, and, as other points in favour of the two affections being classed together, I may mention the early shooting pains and malaise, the frequent march of the palsy from periphery to centre, and, above all, the varying combination of motor and sensory phenomena which is found in both affections. This latter variability is well known in peripheral neuritis. I may instance the painful palsy of alcoholic causation and the usually painless palsy of lead, both admittedly due to affections of the peripheral nerves, and which may fairly compare respectively with instances, such as those which I have related, in which the sensory phenomena were marked, and those more common cases where sensation is less affected. But that Landry's palsy cannot be accounted for by an affection of the peripheral nerves alone is almost certain. In my first case I note that the paralysis of the external rectus of the eye and of the face were on the same side, and from the known proximity of the sixth and seventh nuclei this is strongly suggestive of a central affection as against a peripheral affection.

There is no doubt that our conceptions of peripheral neuritis must be widened, and the researches of Dr. F. W. Mott and others on the anatomy and physiology of the neuron make it incumbent on us to enlarge the boundaries of this class of diseases, or possibly to re-label some of them. Thus when we say of anyone that he is suffering from alcoholic neuritis we neither express, nor do we overlook, the fact that the poison does not act only on the nerves, but that the centres in the cerebrum are also affected, and it is, of course, only in this sense of the term that I support the provisional classing of Landry's palsy in the group known as peripheral neuritis. And if, as Westphal was the first to suggest, the disease is due to an infective process, it is not unreasonable to hold that various parts of the nervous system may be affected in different cases, or even in one and the same case, for we are aware that poisons of known nature have a selective influence on various parts of the nervous system—morphia on the brain, strychnia on the cord, curara on the motor nerve endings, atropine on the eye, lead especially on the nerves of the extensor muscles of the forearm, and alcohol sometimes, I believe, on the motor nerves only, and at other times on the motor and the sensory nerves both as well as on nerve centres.

In one of my cases the knee-jerk was abolished, in the other it was increased, just as we find in different instances of alcoholic paralysis; and this seems to point to the probability of the lower motor neurons being affected in some cases and the upper in others. So, also, in the same case we have evidence in the great paralysis of the limbs, centripetal in character, and not associated with any affection of the sphincters, of a peripheral lesion, and at the same time evidence of a central lesion in the association of facial and ocular palsy on the same side.

It will be noted that in both the examples which I have recorded the sensory phenomena were early and well marked, and that in Case 2 they were for a long time far more striking than the motor phenomena. It is pointed out by Dr. Judson Bury that many writers exclude cases in which sensory phenomena are conspicuous, but he clearly shows from a reference to Landry's original paper that those who admit such cases (viz., Nauwerk and Barth and Ross) are more correct than those critics (Bailey and Ewing) who would exclude them; for Landry, while stating that generally motor symptoms predominate, also clearly expresses the view that "sensibility and mobility may be equally affected," and as Dr. Bury very cogently remarks, "If Landry's paralysis means anything, it means the disease originally described by Landry."

Leeds.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF ACUTE RHEUMATISM WITH PREVIOUS MITRAL REGURGITATION FOLLOWED BY PERICARDITIS.

BY ALBERT R. HENCHLEY, L.R.C.P., L.R.C.S. EDIN., L.F.P.S. GLASG.

IN March, 1900, I was attending a boy in this village suffering from acute rheumatism with mitral regurgitation, and during the latter part of his illness, when he was practically convalescent, the mother asked me if I would call and see another son of hers the next day in a village a mile away. On arriving there the following day (March 26th) I found the lad, aged 17½ years, in bed, with both knees and ankles and the left shoulder swollen and painful. He said that he had been bad for seven or eight days with first one joint swollen and then another, and thinking he had "caught a chill" he had hoped that it would pass off. His temperature was 103° F., his respirations were 28, and his pulse was 90. His bowels had been open twice that morning but previously they had been confined. He was sweating freely. On examining the chest I found that the area of cardiac dulness was increased, the

impulse being in the fifth left interspace, below and slightly external to the nipple. There was a well-marked mitral systolic murmur which was to be heard distinctly in the back of the same side. His previous illnesses were measles and (?) scarlet fever, the latter when he was about three years of age, and the medical man in attendance then is said to have remarked that it had affected his heart. Nine months previously I had refused to pass him into a friendly society on account of his having a systolic murmur at the apex.

I had the joints covered with cotton-wool and flannel. I also advised bathing his chest and head with tepid water and gave him a mixture containing 10 grains of sodium salicylate, 10 grains of potassium bicarbonate, and four minims of tincture of digitalis, to be taken every four hours, and two teaspoonfuls of brandy, also every four hours. By April 1st his temperature had dropped to 100°, his pulse was 90 and his respirations were 30. No other joints had been affected in the meanwhile, but those that were had considerably lessened in size and he was suffering from no pain. On examination of the heart I found it to be considerably increased in size, reaching to the right of the right border of the sternum, above nearly to the lower borders of the second ribs, and practically as before on the left side. Friction sounds were to be heard over this area. By the 3rd the joints were normal in size and painless and the sweating had subsided, but the temperature had risen to 103·2°, the pulse was 120, and the respirations were 40. The urine was diminished in quantity to 44 ounces in 24 hours. I stopped the sodium salicylate and substituted 30 grains of diuretin every four hours. The brandy was continued and the bathing was stopped. The patient was kept propped up in bed almost at right angles to it, as otherwise orthopnœa was so pronounced. During the next five days, with occasional small doses of antifebrin, the temperature dropped to 101°, but there were no signs of absorption of the effusion taking place. I ordered the chest to be painted once daily with tincture of iodine (half strength) and gave three grains of iodide of potassium every four hours. By the 12 h the area of cardiac dulness was markedly diminished; the temperature was 99·4° in the morning and 100·2° in the evening. The urine had now reached about 60 ounces daily. The painting of the chest with iodine and the administration of iodide of potassium were stopped, as an iodide rash had appeared. On the 20th the patient's temperature was normal and remained so, and his heart had resumed its normal size. He was, of course, still kept in bed and all available and suitable nourishment was administered. In the beginning of June the parents particularly wished him to be taken home. A carriage and pair was kindly lent and he was placed on a stretcher and put in it and taken at a walking pace. A few days afterwards I was fetched early in the morning to him and found that he had commencing signs of backward pressure from the heart failing. The lungs were congested at the bases, the liver was enlarged, and there was œdema of the legs, ankles, and feet. I gave him a hypodermic injection of one-hundredth of a grain of strychnine sulphate and ordered half a wineglassful of champagne every two hours. The next day he seemed much better and was ordered a mixture of digitalis and an alkaline aperient. Then he developed a sudden swelling of the left forearm and hand with simple phlebitis, probably due to thrombosis of the axillary vein, the right arm being quite normal in size. In the course of 10 days this got better, but otherwise he became gradually worse and he died on June 26th.

Now that there is so much discussion on the classification of acute rheumatism it seems worth while drawing attention to the coincidence of two members of the same family being affected at the same time. Although not living in the same house the deceased had visited his brother frequently before he had to take to his bed. I believe it is not a common occurrence to recover from pericarditis when there is a previous diseased condition of the valves of the heart.

Blagdon, near Bristol.

A CASE OF COMPLETE INVERSION OF THE UTERUS.

By DAVID DURRAN, M.B. GLASG.

OWING to its great rarity the following case of complete inversion of the uterus ought to be placed on record. According to Playfair this accident was only observed once in upwards of 190,800 deliveries at the Rotunda Hospital since its foundation in 1745. Various explanations have been given to account for its production. In the present case there was a suspicion that pressure on the abdomen was improperly applied, but the midwife who was in attendance would not admit that there was undue pulling on the cord. The case was as follows.

On Jan. 30th, 1899, I was called to a woman in labour. On my arrival I found her in bed, pale, with a small and feeble pulse, cold clammy skin, and evidently suffering from shock. The midwife informed me that a little over an hour before a child was born and that along with the after-birth something came down the like of which she had never seen before but which she thought was the womb. This she returned. There was great loss of blood and the patient had been in a fainting condition ever since. It may be mentioned here that the patient was 25 years of age, strong, and in good health. She had been married seven years and this was her third child. On examination I discovered a large globular mass of the consistence of muscle tissue filling the vagina and bleeding profusely. Bimanual examination showed the absence of the contracted uterus and instead a cup-shaped depression was easily felt, which made out the case to be one of complete inversion of the uterus. Manipulation restored the organ in a few minutes to its natural condition. The inverted uterus was first firmly grasped by the hand and gently squeezed, being at the same time pushed slightly upwards. The tips of the fingers were then applied to the fundus and by steady pressure in the proper axis of the pelvis the uterus was felt to resume its natural shape. The patient made a good recovery and everything went on well until the eleventh day after the confinement, when delusions showed themselves, and in a few days the case developed into one of acute puerperal mania presenting the usual symptoms, which necessitated asylum treatment. There was evidence of hereditary tendency, but the determining cause at that time was no doubt the shock from the accident referred to as well as exhaustion from the great loss of blood. After several months in the asylum the patient returned home and is now in very good health.

Thurso, Caithness.

UNUSUAL CONDITIONS AT BIRTH.

By A. J. RICE OXLEY, M.A. OXON., M.B. DUB., M.R.C.S. ENG.

CASE 1. *Fracture of the clavicle: normal presentation.*—A patient of mine was delivered of her third child a short time ago. At my visit the following day the nurse asked me to look at a "sharp hard swelling at the top of the right side of the chest." On examination I found that the infant had a fractured clavicle. Delivery had been very rapid—so rapid that I was unable to arrive in time; but the nurse, a skilful one, assured me that she had in no way interfered during the progress and that it was normal in every way "except for its being very quick indeed." Such an occurrence is, of course, not very remarkable in some cases of difficult labour, but is surely very unusual in a case of the above-mentioned type. I may add that union was quite satisfactory.

CASE 2. *Congenital thickening of the sterno-mastoid.*—Shortly after delivery (by forceps) the nurse called my attention to a lump at the side of the neck of the infant. I had exercised comparatively little traction and diagnosed the case as "congenital swelling of the sterno-mastoid." This thickening was not a hæmatoma I am sure, and has now almost disappeared without any limitation of movement. I gave small doses of grey powder, but as the tendency of these thickenings is to clear up by themselves it is impossible to ascribe any definite effect to this preparation.

Streatham, S.W.

PROPOSED BACTERIOLOGICAL LABORATORY.—The sanitary committee of the Plymouth Corporation have decided to approach the Devon and Cornwall County Councils and the Stonehouse District Council in reference to the formulating of a scheme for the establishment of a joint county and municipal bacteriological laboratory in conjunction with the borough of Plymouth.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

UNIVERSITY COLLEGE HOSPITAL.

A CASE OF TETANUS; SUBDURAL INJECTION OF ANTI-TETANIC SERUM; RECOVERY.

(Under the care of Mr. A. E. BARKER.)

IN the present state of our knowledge as to the therapeutic value of the intracranial injection of anti-tetanic serum it is very desirable that as many cases as possible of this ingenious treatment should be put on record. The injection of the serum into the subdural space is simpler and less likely to do harm than the injection into the brain substance, and therefore is to be preferred if it seems to be equal in efficacy. Of 25 cases that have been recorded of treatment by intracranial injections, 14 patients died and 11 recovered.[1] For the notes of this case we are indebted to Mr. Percy Stedman, house surgeon.

A man was admitted into University College Hospital under the care of Mr. Barker on May 4th with the following history. 14 days previously he went into his yard, slipped down, and cut the side of his head. A friend washed the wound for him with Condy's fluid and bandaged it up. He felt little the worse for the fall and went on with his work as usual until May 1st. On this day he felt that his neck was getting stiff and he experienced a curious sensation of something crawling up the back of his neck; he saw his medical adviser who sent him to bed. On the next day the stiffness at the back of the neck had increased and the head was twisted to the left side. The following day the jaw and also the back of the legs began to get stiff. He had no twitchings or convulsions.

On admission, on the right side of the head, over the lower and posterior part of the parietal bone, was a wound through the skin, about one square inch in size. It had a distinctly sloughy appearance and around it there was a large amount of œdema. He complained of pain and stiffness at the back of his neck and of inability to open his mouth; he could not turn his head to the right, neither could he raise himself from the bed. The back was arched and the legs were rigid; he perspired very freely, being covered with beads of sweat. On making an effort the patient was able to open his teeth to the extent of a quarter of an inch; through this a small indiarubber tube had been inserted by which the patient was fed with milk. The arms were unaffected, the thorax and abdomen moved well on respiration, but the abdominal muscles were rather hard. The pulse, respiration, and temperature were normal.

In the absence of Mr. Barker from town Mr. Victor Horsley decided to inject anti-tetanic serum. The head was shaved over the parietal bone and the sloughy wound was excised. The skull was trephined with a quarter-inch trephine and the needle of the injection syringe was passed into the sub-dural space and seven and a half cubic centimetres of anti-tetanic serum, prepared at the Jenner Institute, were injected. Whilst the patient was under the anæsthetic the spasm of the muscles only showed slight tendency to relax. During the following four days 20 cubic centimetres of serum were injected into the flanks. The abdomen became very rigid and the right arm also became rigid. Gradually increasing doses of chloral had been administered to the patient since his admission until he was taking 80 grains per diem; this was continued.

No improvement took place for a week when the rigidity of the muscles of the neck and abdomen began to pass off. From this time onward the patient made an uninterrupted recovery, the rigidity passing from the legs last, and at the end of three weeks from his admission into the hospital all the stiffness had passed off.

[1] Practitioner, 1899, vol. ii, p. 80.

ROTHERHAM HOSPITAL.

A CASE OF TUBAL GESTATION WITH RUPTURE IN A WOMAN PREVIOUSLY OPERATED UPON FOR TUBAL GESTATION WITH MISSED LABOUR.

(Under the care of Mr. J. B. LYTH.)

ONE of the more frequent causes of sterility in women is an obstruction to the passage of the ovum along the Fallopian tube. If this obstruction be bilateral and complete the sterility is absolute, but if it be unilateral, or not complete, fertilisation may occur. This is then especially likely to take place in the Fallopian tube, for the spermatozoon can pass through an opening which is too small to allow the passage of an ovum. For the notes of the case we are indebted to Dr. J. S. Martin, house surgeon.

A married woman who had had one child born dead 10 years previously was admitted into the Leeds Infirmary in November, 1892, under the care of Dr. James Braithwaite, to whose courtesy Dr. Martin is indebted for an account of her case while there. She had a history of 10 months' pregnancy. There was no history of rupture of the sac. After nine months the child appeared to have died. On Nov. 30th an operation was undertaken and a large full-grown dead child was removed. It lay in a cyst which was an expanded portion of the left broad ligament. The placenta was attached to its posterior wall and was removed. The edges of the cyst were stitched to the peritoneum, the cavity was drained, and the patient made a good recovery. She had no further pregnancies and remained well until six weeks before her admission to the Rotherham Hospital. She had some irregular hæmorrhages and these in the light of her previous experience she regarded as evidence that she was again pregnant. She thought that she would be three or four months gone. Six weeks before admission she had an attack of abdominal pain with collapse, sickness, and jaundice. The attack lasted a couple of days. She had six attacks before her admission. On May 22nd, 1900, and on the morning of the 23rd she had another attack. She was in great pain and her blanched lips and feeble pulse indicated internal hæmorrhage. Her temperature sank to 96° F. An injection of strychnine was given and a quarter of an hour afterwards she rallied. The pain and sickness continued through the day. On the following day (May 24th) she was better and it was possible to make an examination of the abdomen. There was a tumour reaching well above the umbilicus and lying medially but somewhat inclined to the right. The scar of the previous operation lay to the left of the umbilicus. In the afternoon she had another attack similar to that of the 23rd. She recovered again and on the 26th she was so much better that Mr. Lyth proceeded to operate.

An incision was made, starting from a point one inch below and to the right of the umbilicus, and continued downwards for about three and a half inches. On opening the peritoneum a mass of blood-clot came into view. Mr. Lyth passed his hand first around and then through this and his hand entered the sac. Placental tissue and a piece of umbilical cord four inches in length were found, but no fœtus. The pregnancy was in the fimbriated end of the right Fallopian tube or between it and the ovary. The sac had in the course of its growth become adherent to the omentum, the wall of the pelvis, the small intestine, and the posterior part of the body of the uterus. The uterine end of the Fallopian tube had become adherent to the sac. Between this and the fimbriated extremity there was a free loop. The placenta lay upon the upper surface of the sac. The site of the rupture could not be discovered. Before a pedicle could be made it was necessary to remove the placenta. After this all the free portions of the sac were cut away. Two portions of the sac were so closely adherent to the omentum and the pelvic wall that it was necessary to leave them. From the size of the sac the pregnancy was about the fifth month. During the operation the patient lost a good deal of blood and saline infusion was resorted to. A glass drainage-tube was inserted and the wound was closed.

The patient made a good recovery. The wound was syringed daily with a solution of boroglyceride (1 in 20). There was diarrhœa from May 30th to June 2nd, which was

probably the result of absorption of septic products. On June 1st the tube was removed and the wound was closed. On the morning of the 4th the temperature rose to 99·4°. This led to an examination of the wound and the discovery of a localised abscess containing a good deal of offensive purulent matter. This was evacuated, a rubber drainage tube was inserted, and the cavity was syringed with iodoform emulsion. The wound was now dressed daily, pieces of placental tissue coming away from time to time. The tube was removed on July 2nd and the wound was completely healed on July 26th, the date of her discharge.

Remarks by Dr. MARTIN.—The above case may be of interest not alone on account of its rarity but as illustrating the fact that some women are liable to abnormalities of gestation on both sides of the body. Such cases would point to some abnormality in the formation of the uterine appendages delaying the passage of the ovum rather than to accidental causes. Greig Smith in his "Abdominal Surgery"[1] mentions some six or more cases recorded by various observers. In the same work he states that the condition is likely to occur in women who have been sterile for long periods or who have shown "inaptitude for conception." This statement is borne out in the above case, there being an interval of 10 years between the first and second pregnancies and one of eight years between the second and third. Neither at the first nor at the second operation was any malformation of the uterus or tubes observed, but it is possible that under the circumstances such malformation may have been overlooked. I am indebted to Mr. Lyth for permission to publish the case and to Dr. Braithwaite for the permission to use the notes which he kindly sent me.

SALOP INFIRMARY.

A CASE OF INTRA-THORACIC GROWTH SIMULATING HEART DISEASE.

(Under the care of Dr. E. CURETON.)

THE diagnosis of mediastinal tumours is always attended with difficulty, and the growths may attain a large size before being recognised. The physical signs usually point to localised pleural effusions or to pulmonary consolidation; occasionally, as in the case recorded below, the interference with the heart's action may lead to signs suggestive of disease of that organ. A few cases have been recorded in which an intra-thoracic growth has given a fairly distinct shadow on a Roentgen ray photograph, and we may hope that by improvement in skiagraphy the diagnosis of these tumours may be simplified.

A man, aged 27 years, was admitted into the Salop Infirmary on July 7th, 1900. The patient had had shortness of breath for three months and pain in the præcordial region for six months; both pain and dyspnœa had become worse during the last month. The patient stated that he had never had rheumatism or chorea.

On examination the upper border of the heart was found to be at the third rib, the right border was at the right edge of the sternum, and the left border was just external to the left nipple. The impulse was forcible and heaving and was best felt in the fifth space one inch internal to the left nipple. A loud systolic murmur was heard at the apex and conducted into the axilla; a systolic murmur was heard at both bases and conducted to each clavicle; the second sounds were clear. A systolic murmur was heard over the middle of each lung. The pulse was irregular and strong and the radial artery felt thickened. The feet had been swollen and were slightly so on admission. The left lung was duller on percussion in front and behind than the right, and the heart sounds were not so clear. The sounds heard in the axilla were natural. There were no adventitious sounds. The subsequent history of this patient up to his sudden death on July 12th was uneventful; he appeared to be better and asked to be allowed to go home.

Necropsy.—On post-mortem examination the mediastinum was found to be filled with a mass of new growth involving the glands at the root of the lung and surrounding the base of the heart and great vessels. The growth extended into the neck on each side of the trachea and on the left side along the subclavian artery, being firmly adherent to the tissues at the back of the clavicle. The left lung was to a large extent taken up by the growth except in the axillary border, and there was a patch of old pleural adhesions over the upper third in front and in the axilla. The heart was pushed forward and hypertrophied, the pericardium was thickened and adherent, and the coronary veins were enlarged and very tortuous. In the pericardium there were patches of new growth, but the heart muscle was not apparently implicated. No valvular lesions were found. The parietal pleura on the left side was studded with the growth, as was also the diaphragm. New growth was found in the pancreas, both in the head and in the tail, which was adherent to a mass of growth involving the left suprarenal capsule; there were also some patches in the capsule of the left kidney. The remaining abdominal viscera appeared to be normal.

Remarks by Dr. CURETON.—The growth described above has been examined by the pathologist to the hospital Mr. T. L. Webb, and pronounced to be a lympho-sarcoma For the above recorded notes I wish to thank our deputy house physician, Dr. Cecil Reynolds.

[1] Vol. i., p. 426.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

After-results of Vaginal Hysterectomy performed for Cancer of the Uterus.

A MEETING of this society was held on Nov. 13th, Dr. F. W. PAVY, the President, being in the chair.

Dr. A. H. N. LEWERS read a paper on the After-results in Forty Consecutive Cases of Vaginal Hysterectomy performed for Cancer of the Uterus. He grouped the cases as follows: in 12 cases there had been no recurrence; in 18 cases there had been recurrence; four cases had died; in two cases the nature of the disease could not be proved by examination of the specimens; in three cases no definite information was obtained as to recurrence; and in one case the disease proved to be primary tuberculous ulceration of the cervix. Omitting Case 39, in which little more than a year had elapsed (without recurrence), there were 11 cases (or 27·5 per cent.) remaining well from two to more than seven years subsequent to the operation. Dr. Lewers believed that this high percentage was largely due to the careful selection of cases. His rule had been to examine under anæsthesia and only to operate on those cases in which, according to the physical examination, the disease seemed to be limited to the uterus itself, and he had for some time past only performed the supra-vaginal amputation of the cervix for very early cases and cancer of the vaginal portion, in which there was a limited and superficial growth. He had performed 33 amputations of this kind, but these were not included in the paper. In each of the 12 cases of vaginal hysterectomy in which the disease had not recurred the specimen had been independently reported on by Mr. J. H. Targett (of the Clinical Research Association), and his report was given in the paper. In each of the same 12 cases full details were given also of the evidence on which it was claimed that the disease had not recurred. Dr. Lewers believed that on this point the evidence was more precise and in fuller detail than had been given previously over a series of cases. The conclusions arrived at from a consideration of the cases reported in the paper were as follows: 1. That in a certain proportion of cases patients suffering from cancer of the uterus might be relieved by operation for periods of many years—in some cases for so long a time, seven years and upwards, that there seemed a probability that the relief might be permanent. 2. The proportion of cases in which this result could be expected must remain very small so long as patients generally only sought advice at a late stage of the disease. 3. The great desideratum was early diagnosis. Especially important was the more general recognition of the gravity of bleeding occurring after the menopause, or, at an earlier period of life, between the menstrual periods. It was almost equally important to bear in mind that patients suffering from cancer of the uterus might, and generally did for a relatively long period, look quite well; and they might appear to be well nourished, and even fat. Two

tables, 14 illustrations, and macroscopic and microscopic specimens were exhibited.

Dr HENRY BRIGGS (Liverpool) said that he had operated on 83 cases of malignant disease of the uterus (three of which were sarcoma of the cervix) by vaginal hysterectomy with four deaths. Taking his cases up to the end of April, 1899, he had 57 to record with three deaths. Of the 57 one was a sarcoma of the cervix without recurrence (now 10 years since the operation). Of the 56 cases of cancer 10 were carcinomata of the body and 46 of the cervix. 10 of these cases were living, in five of which recurrence had taken place, and in five only was there a prospect of permanent cure. Of the 46 cases of cancer of the cervix in only five did he at present expect freedom from recurrence, although induration in the broad ligament before and after operation might prove to be cancerous. In cases of malignant adenoma the results were better than in cases of cancer. He and the obstetric assistant at University College, Liverpool, had analysed 80 cases of cancer of the uterus—65 of the cervix and 15 of the body. Of the former four were malignant adenoma, of the latter 11. The tendency to recurrence was greater in squamous-celled carcinoma than in adenoma. Dr. Lewers's paper would encourage the practice of the radical operation. He (Dr. Briggs) suggested that when a patient objected to examination the ordinary medico-legal tests for blood might be applied to inter-menstrual discharges. He agreed with the technique adopted by Dr. Lewers.

Dr. AMAND ROUTH congratulated Dr. Lewers on his exhaustive paper and remarked on the difficulty in following out such cases. Up to the beginning of this year he himself had performed vaginal hysterectomy on 40 cases. 14 were for cancer of the body and 26 were for cancer of the cervix. He had only had three deaths. One patient died from exhaustion on the sixth day; the patient was alcoholic. Two others were cancer of the body; one died on the sixteenth day and the other on the twenty-fourth day, both of them quite suddenly, the last-named having previously been attacked by acute mania. Turning to the question of recurrence, it was a curious fact that cancer of the body did not seem to recur so soon as cancer of the cervix, perhaps because they came under notice earlier. Regarding his cases of cancer of the body, recurrence took place in three cases within 12 months and one in 17 months. One was well after two and a quarter years, one after three and a half years, and one after four years. Among the cases of cancer of the cervix several had recurred within 12 months, one two years afterwards, one three years afterwards, and one, a very disappointing case, seven years after the operation. One case was now quite well on whom he had operated in 1892, and another was in similar plight upon whom he had operated in 1895. Turning to the methods of the operation, he could not agree with the use of the forceps for the broad ligament. He began by their use but now preferred ligatures. If forceps were used they should be left on for 36 hours. He never employed this operation when the disease had extended to the broad ligament or the other parts around. He would like to know how long the gauze packing was kept in in Dr. Lewers's cases. His practice was to leave it in for seven or 10 days, sometimes more.

Mr. BOWREMAN JESSETT had performed the operation on 150 cases. Of these 107 had been published last year. His results quite justified what Dr. Lewers had said and went to show that a fair proportion of cases of cancer of the uterus were practically cured by the operation. The point of prime importance was early diagnosis. If practitioners could be impressed with the idea how important it was to see these cases early he thought the results would be better. A symptom which was earlier in his experience than even inter-menstrual hæmorrhage was hæmorrhage during coitus. Like Dr. Routh he preferred the use of the ligature. The only disasters he had met with were after the use of the forceps. Adhesions were among the difficulties to be dealt with, and in one of such cases where the forceps had been used recto-vaginal fistula had resulted. This would not have happened if ligature had been employed. Dr. Lewers had not referred to the cases of fibroid which became malignant, and such cases, he believed, were very favourable for this method of operation. In dealing with the perineum he thought it was important to get posterior and anterior forceps and to draw them thoroughly well down.

Mr. CHARLES RYALL referred to the relative frequency of recurrence in cancer of the cervix and cancer of the body. Undoubtedly the former seemed to be more frequent. Some observers thought that the explanation lay in the earlier diagnosis of cancer of the body, but he believed that the true explanation was to be found in the reinfection of the wound during the operation, and he referred to a case which impressed this upon him very forcibly. The case was one upon which he had performed abdominal hysterectomy for cancer of the fundus. During the operation he tore the uterus across the fundus and was obliged to remove the cervix. Twelve months later there was a recurrence in the vaginal cul-de-sac producing abdominal obstruction. To relieve this colotomy had to be performed and there was found a small, hard lump in the abdominal scar, histologically identical with the original growth in the fundus of the uterus, and it was evident that the abdominal scar had become infected at the time of the first operation. He regarded vaginal hysterectomy as a very valuable means of treatment, but it was not justifiable for palliative purposes.

Mr. WALTER TATE thought it was a pity that Dr. Lewers had not differentiated his cases into cancer of the body and cancer of the cervix. He had performed about 70 vaginal hysterectomies for both varieties of cancer. He could not agree with Dr Lewers that the operation was only suitable when the disease was strictly localised to the body of the uterus. A good deal of relief might be given to the patient when there was a slight thickening of the broad ligaments. Professor Martin (Berlin), some years ago, had laid down the rule that when the operation was easy it was a good operation, but when it was difficult it was a bad operation, and he quite endorsed this. But he thought that the procedure was justifiable, even when it did not result in a permanent cure.

Dr. F. H. CHAMPNEYS congratulated Dr. Lewers on his statistics which quite negatived the views expressed against vaginal hysterectomy. He had had very good results from it. Examination per rectum was a valuable means of diagnosis, for one could reach higher in this direction and palpate the parts around with greater facility. He thought the operation was not justifiable when the disease extended beyond the uterus, though it was often difficult to be certain about this. Examination under anæsthetics helped to clear the matter up As regards the methods he began by the use of ligatures, but now preferred forceps for dealing with the broad ligament. But he did not use Spencer Wells forceps, the teeth of which were transverse. The traction on the forceps was also transverse; usually he preferred the serration to be diagonal. He was surprised to hear that fibroid took on malignant disease. In all his experience he had only seen one case where such a change seemed probable.

Dr. HERBERT SPENCER had been extremely interested in the case which Mr. Ryall mentioned, for he was certain that there was considerable risk of implanting the growth upon the vagina, vulva, and other parts wherever there was a scratch or abrasion of the surface. He had not heard a more conclusive case than that mentioned by Mr. Ryall. This risk had often led him to do high amputation of the cervix and for the same reason he preferred the use of the cautery. The entire operation could be done by means of the cautery, as suggested by Dr. Byrne, an American operator, who had done some 400 cases with only one death by this means. The uterus could be removed entire in this way. For the same reason the less the uterus was cut up the better.

Dr. LEWERS, in reply, congratulated Dr. Routh on his low mortality. He had thought malignant disease of the body was probably met with in an earlier stage than that of the cervix. In both there was, he believed, a stage when actually no symptoms at all were present and he referred to the case of a woman from whom he removed a commencing fibroid polypus. She came to him from time to time as a matter of precaution, and on one occasion he noticed a raised patch on the anterior lip of the cervix quite away from the site whence the polypus had been removed. The cervix was thereupon amputated and the ulceration turned out to be cancer. This patient had presented no symptoms of any kind. The disease was discovered accidentally. Some of the best results he had achieved had been by means of the high amputation of the cervix. Two patients had been operated upon in this way 12 or 13 years ago who were now perfectly well, but these cases had not been included in his series. As regards the use of forceps and ligatures each had their disadvantages, but ligatures were often difficult to apply and were so liable to slip. Large cancerous tumours of the body of the uterus were best removed by abdominal operation if operated on at all. He could not agree with the view that fibroids underwent malignant change. None of

his cases were intended to be palliative; they were intended to be curative, though the result was not always so.

MEDICAL SOCIETY OF LONDON.

Exhibition of Cases and Specimens.

A MEETING of this society was held on Nov. 14th, Mr. JOHN H. MORGAN, the President, being in the chair.

Dr. E. CAUTLEY exhibited a case of Chronic Follicular Colitis in a patient, aged four and a half years, who had been ill since last Christmas. The first symptoms noticed were anorexia and wasting; after that diarrhœa and abdominal pain came on. From May to September she was treated at a hospital for children without apparent benefit, and the looseness of the bowels had continued in spite of treatment. For the last two weeks blood had been present in the motions. She was now very emaciated and anæmic but presented no other physical signs of disease. The stools were loose, very offensive, and contained small black blood-clots of the size of hemp-seeds. During the last few days she had improved a little on milk diet and large doses of salicylate of bismuth. Occasionally she vomited. The diagnosis was based on the chronic course of the case, the character of the stools, the vomiting, wasting, and anæmia, and on the absence of more than slight pyrexia. There was no evidence of tuberculous peritonitis. Dr. Cautley referred to an epidemic of acute colitis in children which had recently come under his notice, consisting of six cases, one of which was fatal, and he pointed out that affections of the colon in children had received very little attention in this country. He would like to know what was the probable prognosis of this case.—Mr. F. C. WALLIS suggested the possibility of tuberculous peritonitis in this case, which sometimes appeared with little or no fluid in the peritoneum. As to treatment, if there was tuberculosis laparotomy was indicated; if there was colitis a colotomy might be performed as a temporary measure and the bowel washed out. He asked if any rectal examination had been made so as to exclude rectal polypi.—Dr. A. F. VOELCKER asked if any œdema over the backs of the hands and feet had been observed, which was sometimes associated with colitis. He was inclined to agree with Dr. Cautley as to the diagnosis from an examination of the abdomen, and the chronic course of the case. As to treatment, he suggested creasote in combination with small doses of castor-oil. He had had a boy, aged five years, under his care suffering from undoubted chronic colitis who eventually recovered after having suffered for more than two and a half years from the disease. Treatment in that case was what he had just suggested.—Dr. CAUTLEY, in reply, remarked that dark blood-clots were very unusual in tuberculous colitis. Treatment was difficult because of the vomiting. Salicylate of bismuth was the treatment in this case and the child had made some improvement.

Mr. T. H. KELLOCK exhibited a case of Mollities Ossium in a child, aged seven years. The birth was normal, the child being larger than usual and weighing 12 lb. At first she was nursed by her mother, but the mother developed puerperal insanity. Later, at the age of five months, the thigh became painful, tender, and then fractured. Twelve months later the left tibia and humerus fractured; subsequently the right femur (twice) and other bones broke, some of them several times. She did not cut her teeth till the age of 18 months and they were now ill-developed and carious. The child was now intelligent for her age though she had never been able to walk or to stand and was undersized, measuring only 30 inches in length. The skull was deformed, the circumference being 19 inches. She had ptosis of the left eyelid. The ribs were crowded together, but the pelvis was little, if at all, affected. The urine was very scanty, amounting only to about nine and a half ounces per diem, and was peculiar in containing about double the normal quantity of phosphoric acid and urea. The proteid which was said to occur in the urine in adult cases had not been found in the urine of this child. Skiagrams were exhibited which showed that the bones were unduly translucent owing to the deficiency of inorganic matter. Mr. Kellock referred to a case exhibited by Mr. Clinton Dent before the Medical Society in 1896—a male patient, 29 years of age, with a very similar history to that of this child. There was a striking likeness to this case. It was described as fragilitas ossium. But he preferred the diagnosis mollities ossium. A curious feature in his (Mr. Kellock's) case was the pain which appeared for a week or so in the bone at the seat where fracture was about to occur.

Mr. E. M. LITTLE exhibited specimens of the Bone from a case of Late Rickets shown at a meeting of the Medical Society in April. The patient was 17 years of age and the symptoms of the disease had been present since he was five years old. The bones were soft and the epiphyses were swollen. The patient had died with acute cerebral symptoms in May last. The specimens showed irregular ossification with islets of ossification scattered in the bony tissue, a condition typical of rickets. He also referred to a case now under his care, of a lad, 17 years of age, in whom there was genu valgum. The bones were extremely soft and the skiagram showed undue translucency owing to the deficiency of lime salts. This case, like the former, he thought was a case of late rickets.—The PRESIDENT referred to a case which he had seen two years ago which resembled the case now shown by Mr. Kellock. Like it, the patient was an only child who came from a healthy country district and had had proper nourishment. This case presented fracture of most of the long bones. The interest of these cases lay in their pathology. In Mr. Little's specimens there were grounds for calling the disease late rickets. Mr. Dent had described his case as "fragilitas ossium" and Mr. Kellock as "mollities ossium," but there was in all of these cases a marked resemblance to rickets, though clinically he did not remember having observed pain preceding the fractures. In this respect the cases resembled sarcoma.

Dr. H. A. CALEY exhibited a case of Vascular Swelling connected with the Thyroid Gland occurring in a man, aged 56 years. There was an obvious swelling on the side of the neck which was said to have been of about two months' duration before admission. The pulsation was conspicuous and localised, a systolic bruit was occasionally audible, and there was a marked diastolic rebound synchronous with a much accentuated second sound. There were also indications of an aneurysm involving the innominate artery. There were no symptoms of Graves's disease. The character of the swelling in the neck, together with the diminution which had occurred as a result of five weeks' rest with full doses of iodide of potassium, was against a sarcomatous growth and in favour of an aneurysmal lesion, possibly originating in the inferior thyroid artery in one of its main branches in the gland. The co-existence of the innominate lesion was also in favour of a vascular origin. The alternative diagnosis was a highly vascular goitre of an asymmetrical type, and the diminution under iodide of potassium was not incompatible with that view.—Dr. WILLIAM EWART remarked on the great size of the swelling without any corresponding extension of the tumour far down into the thorax.—Mr. WALLIS could not agree with the diagnosis of the inferior thyroid. It was a very unusual position for aneurysm and he had not been able to make out distensile pulsation very clearly. Possibly the swelling might be connected with the thyroid.—Dr. CALEY, in reply, said that the intra-thoracic condition, whatever it was, was quite separate from the swelling in the neck. As to the diagnosis of the latter, the diastolic rebound of the tumour and the marked accentuation of the sound made it clear that there was something abnormal in the arteries at the site of the swelling.

Mr. C. C. WEEKS exhibited a case of Congenital Locomotor Ataxy in a boy, aged eight and a half years, who had been under care about a year. The first symptom noticed was incontinence of urine. The father had syphilis three and a half years before the birth of the patient; the elder sister was born with snuffles. The patient did not exhibit any signs of that disease at birth. There was motor incoördination of the head and all the limbs and the gait was ataxic; there were inversion of the feet and incoördination on shutting the eyes. The sensory changes consisted of pain in the stomach for over a year, and in the lower limbs the pain had been very severe, especially at night; he also complained of pins and needles in the feet. There was a band of hyperæsthesia round the abdomen. The plantar reflexes were diminished and the knee jerks were quite absent. Priapism came on whenever he was examined. The pupil changes had varied but these were sometimes sluggish to light. The optic discs presented no changes. He sometimes said that he could not pass urine and then five minutes

later passed a great quantity involuntarily. An interesting feature about this family was that the father presented ataxy, various sensory perversions, gastric crises, and slight ptosis in one eyelid.—Dr. EWART remarked that some of the features of the case suggested Friedreich's ataxy in an early stage and he proposed that the case be referred to the committee.—Mr. WEEKS, in reply, said that the absence of nystagmus and tremor was rather against Friedreich's disease.

Dr. MORGAN DOCKRELL exhibited two cases of Adenoma Sebaceum, one in a child, aged six years, and the other in a woman, aged 24 years. In both the condition was congenital. There were a number of small sebaceous tumours of about the size of millet seeds over which the skin presented telangiectasis. They had started and were most plentiful, as usual, on the face. Some years ago, when he had been looking up the subject, there were only 10 cases recorded, but at the present time there were some four or five cases attending St. John's Hospital. There were two interesting features about these cases. In the first place, it was generally believed that the disease was associated with the occurrence of fits and a want of intelligence, but in neither of these cases did these features exist. In the second place, a warty condition was usually thought to be associated with the disease, but in neither of these patients was there any lesion of the kind. He had carefully studied the histology of these cases and coloured sketches, photographs, and microscopical specimens were exhibited showing that it was a true adenoma of the sebaceous glands. There was marked dilatation of the lumen of the blood-vessels corresponding to the telangiectasis.—Dr. JAMES GALLOWAY remarked that it was very interesting to observe two cases illustrating different stages of this rare affection. The disease ought to be regarded as a congenital defect in the development of the skin rather than a subsequent overgrowth. It was not really overgrowth though there was enlargement of the vessels. The term "adenoma sebaceum" was not a suitable one. It had been adopted before the pathology of the disease had been studied.—Dr. ALFRED EDDOWES referred to a case under his care. The child was exceptionally bright and intelligent.—Dr. DOCKRELL, in reply, pointed out that the microscopical examination showed a true adenomatous growth. There was an overgrowth without any loss of the tubuli or acini of the glands.

Dr. DOCKRELL also showed a case of Hyaline Degeneration of the Skin (a condition which corresponded somewhat to the colloid milium of Besnier). The patient was 20 years of age and she had had all her life small translucent waxy tumours beneath her eyelids. The case was a unique one and he had the opportunity to study the histology of the affection. The change was not an adenomatous one, but there was cystic enlargement of the glands, the cysts being distended with hyaline material. Dr. Unna had expressed the opinion upon the microscopical specimens from the case which had been submitted to him that the change was not adenoma but a special hyaline degeneration of the connective tissue, "a special disease of the coil glands and surrounding tissue undergoing first hypertrophy and then degeneration." Microscopical specimens and drawings were exhibited.—Dr. GALLOWAY remarked that cases resembling this had been shown at the Dermatological Society. He complimented Dr. Dockrell upon the microscopical specimens exhibited. Owing to the newer methods, by the use of acid aniline stains which he had employed the histological condition had been revealed. The specimens undoubtedly showed that the elastic tissue had undergone degeneration. The elastic fibres were broken and they were swollen at the ends. The term "hyaline degeneration" had been applied very irregularly to indicate what was sometimes called hyaloid or vitreous changes. The process of hardening had to be taken into consideration. He was glad that Dr. Dockrell had drawn attention to the coil glands; it was only in these and in their neighbourhood that the degeneration took place. The disease was probably clinically allied to what had been previously spoken of as xanthelasma, colloid, or colloid milium.—Dr. DOCKRELL, in replying, remarked that no doubt there were cases which might resemble this one clinically, but unless histological examinations were made it was not possible to come to a conclusion as to their identity or not. He wished to emphasise the importance of making microscopic examination in all cases, when a very marked difference would be found to exist. As to the point that there was any uncertainty in diagnosing hyaline and colloid degeneration, it must be remembered that there were many different forms of hyaline degeneration, such as that found in actinomycosis, that found in lupus erythematosus, and in lichen planus; but in all cases it was easy to diagnose it from true colloid material under the microscope. He hoped on a future occasion to exhibit a case presenting the clinical appearances of xanthoma though histologically showing a colloid condition of the sebaceous glands with a hyaline appearance of the coil glands and connective tissue.

Mr. WALLIS showed a case of Baker's Cyst in a man, aged 44 years. He presented a swelling just below the left knee; the joint also contained fluid. The fluid aspirated from the swelling exactly resembled synovia, but there was no apparent communication with the knee-joint. Scars of old syphilitic lesions in the skin were to be seen on both legs of the patient.

Dr. A. EDDOWES exhibited a man, aged 47 years, presenting Coronal Baldness of 15 years' duration combined with alopecia areata of 18 months' duration, the latter having started on the skin.

The PRESIDENT exhibited a Deformity of the Tibia in a boy, aged 16 years. One and a half years ago he had been injured while jumping. The limb subsequently gave him some trouble and splints were applied. Now there was swelling of the foot due to outward curvature of the tibia, indicating that some injury had happened to the epiphysis, probably a fracture.

CLINICAL SOCIETY OF LONDON.

Sequel to a Case of Hydatid of the Liver.—The Mid-Diastolic Murmur.

A MEETING of this society was held on Nov. 9th, Sir R. DOUGLAS POWELL, the President, being in the chair.

Dr. NORMAN DALTON read a paper on the Sequel to a Case of Hydatid of the Liver, showing also the result of abdominal section on ascites The patient was a girl who, at the age of 11 years, was under the care of Dr. Thomas Barlow at the Hospital for Sick Children, Great Ormond-street, for hydatids of the liver. While in the hospital she passed hydatids per rectum and also expectorated bile from the right lung. She recovered and remained well until the age of 16 years, when ascites set in, and she was admitted into King's College Hospital under the care of Dr. Dalton. After a time it became necessary to tap the abdomen every fortnight, so an exploratory abdominal section was performed by Mr. Watson Cheyne in the hope that a new hydatid, or some remains of the old, might be found and removed. However, nothing which could be removed was found, but it was noticeable that no adhesions were present except at the top of the liver round the fistula into the lung. The wound healed well, but paracentesis was necessary twice in the first fortnight after the operation. After this, however, the ascites did not recur and the patient was quite well for five years. Examination during this time showed that a small quantity of fluid remained in the hypogastrium, while the rest of the peritoneal cavity was thought to be obliterated by adhesions. In May, 1899, the patient died at the age of 23 years from septic peritonitis, which appeared to be due to bruising of the intestines in a ventral hernia at the site of the operation scar. At the post-mortem examination the old cyst was found in the liver, communicating below with a dilated bile duct and above, through the diaphragm, with a dilated bronchial tube. Glisson's capsule was greatly thickened and the liver showed a cirrhosis which had spread from Glisson's capsule inwards. The peritoneal cavity was obliterated by old fibrous adhesions, except in the hypogastrium, where there was a collection of turbid fluid. There were also a few loculi among the intestines and these contained pus. The omentum and mesentery were short, thick, and fibrous, showing chronic peritonitis. It seemed probable that the almost complete cure of the ascites was due to the formation of extensive adhesions, which Dr. Dalton believed would not merely stop the ascites by mechanically filling up the peritoneal cavity, but would really relieve the portal congestion by opening up communications between the portal capillaries and those which joined the veins in the abdominal wall. Dr. Dalton also thought that the cause of the extensive adhesion was the exposure to the air of the endothelium which covered the peritoneum. In ascites this endothelium was ill-nourished and any irritation might lead to the formation of adhesions. In support

of this idea was the fact that cases of tuberculous peritonitis in which ascites was present were often cured by abdominal section; and presumably in those cures extensive adhesions formed. This case distinctly encouraged the plan of treating the ascites of cirrhosis of the liver by abdominal section because for the last 10 years of the patient's life the hydatid was practically cured and the condition was really that of cirrhosis of the liver.—The PRESIDENT remarked, *à propos* of the effect which adhesions had in preventing the occurrence of ascites, that he had noticed that cases of cirrhotic ascites presented a better prognosis when there was an unequal distribution of fluid. He mentioned such a case in which after several tappings the ascites disappeared altogether. In the end this case terminated somewhat like the one brought before the society. The patient was suddenly seized with severe pain and generalised peritonitis and died in a few days, the seizure being probably due to a laceration of the adhesions, followed by hæmorrhage into the abdominal cavity. He agreed with the suggestion that the favourable course pursued by cases with adhesions was due to the establishment of a collateral circulation.—Mr. HOWARD MARSH remarked that the subject was important in relation to the new method of treating ascites by the artificial production of adhesions after the manner adopted by Mr. Rutherford Morison of Newcastle. Laparotomy was performed and the omentum was fastened to the abdominal wall so as to make artificial adhesions. He had done the operation himself on one occasion successfully and he believed that several of Mr. Morison's cases were successful.—Dr. H. D. ROLLESTON wished to draw attention to the rationale by which adhesions relieved both the ascites and the other symptoms in cases of cirrhosis of the liver. Mr. G. R. Turner and himself had brought the subject before the Medical Society last year and they had collected some 15 cases in which operation had been performed.[1] After a study of these cases they had come to the conclusion that it was not only by the production of a collateral circulation that benefit was conferred. It was not only the ascites but the patient's other symptoms which were relieved, and this latter could not be accounted for by the establishment of the collateral circulation, for animals in which the portal and the general circulation were joined became uræmic, and Mr. Morison himself had noticed that the patients became low after operation. He suggested that artificial peritoneal adhesions brought more blood to the surface of the liver and so improved its nutrition, as the result of which compensatory hyperplasia of the liver took place.—Dr. ALEXANDER MORISON assumed that general adhesions such as those described by Dr. Norman Dalton acted by limiting abdominal expansion and inducing an increase of thoracic aspiration. While not questioning the possible correctness of views entertained by surgeons as to the service capable of being rendered to absorption from the peritoneal cavity by establishing a collateral circulation through adhesions, he believed this contention remained to be proved. On the other hand, striking effects in the removal or cure of recurrent ascites might be witnessed by such a complete circular strapping of the abdominal cavity after paracentesis as prevented that cavity expanding and which of necessity lead to exaggerated thoracic aspiration. He quoted cases in support of his contention and suggested that the more general adoption of the method he advised would obviate the necessity for recourse being had to the methods recommended by some surgeons.—Dr. F. S. TOOGOOD referred to a patient who was admitted into the Lewisham Infirmary in March, 1898, with a history of hæmatemesis and melæna who had been tapped every two weeks, several pints of fluid being removed. He performed Mr. Rutherford Morison's operation upon this patient, but in the following September she developed a strangulated ventral hernia through the cicatrix. This was operated upon and four months later another hernia occurred, but there was no recurrence of the ascites after the artificial adhesions had been produced. The liver when touched at the operation had felt typically hobnailed.—Dr. NORMAN DALTON, in reply, pointed out that the production of adhesions was not quite equivalent to the establishment of direct venous connexion because in the former the blood passed through the capillaries before entering the circulation. Hernia was undoubtedly one of the dangers in these cases of ascites treated by operation. He mentioned a patient who died from ventral hernia and remarked on the difficulty of obtaining a tightly closed wound.

Dr. T. STACEY WILSON read a paper on the Diastolic Cardiac Sound which caused Spurious Reduplication of the Second Sound at the Apex (sometimes called the third sound of the heart). The paper was illustrated by numerous cardiograms and it was based upon two cases which were narrated. The sound under discussion was known also as the mid-diastolic murmur. He accepted the theory that the diastolic sound was in all probability caused by the passage of blood through the mitral valve at the commencement of the diastole. The cardiographic tracings showed that the second sound occurred at or just after the commencement of the diastole; they also showed that the third sound occurred at the commencement of the period of muscular relaxation and this marked the commencement of the third phase of the ventricular cycle. The first sound marked the commencement of ventricular contraction, the second sound marked the commencement of ventricular expansion, and the third sound marked the commencement of ventricular relaxation. In cases where the third sound was well marked the cardiogram would exhibit a short, sharp rise immediately following the fall due to muscular relaxation. This oscillation he proposed to call the "suction recoil wave." A study of this wave showed that in cases where the third sound existed there was evidence of increase of tension within the ventricle just after the onset of ventricular relaxation. Dr. Wilson's method consisted of listening himself to the cardiac sounds while he worked the time recorder, an assistant superintending meanwhile the cardiographic tracings. His observations went to show that the mid-diastolic murmur, or, as he preferred to call it, the third sound of the heart, would occur—(1) whenever there was a narrowing of the mitral orifice; or (2) whenever the auricle held more blood than the ventricle could draw through the normal mitral orifice during its expansion movement; and these conditions would occur in (1) mitral stenosis; or (2) whenever the auricle was dilated so as to hold more blood than the ventricle; or (3) probably whenever the ventricular muscle was too weak to empty the auricle as rapidly as normal. In support of these propositions he showed cardiograms from several cases of mitral disease in which the third sound was well marked and dwelt at some length upon one case in particular which threw considerable light upon the cause and meaning of this sound. The case was that of a girl who suffered from mitral regurgitation and pericarditis and in whom there was a well-marked third sound. The cardiogram was of a peculiar description and instead of showing the usual small recoil wave following the diastolic fall of the lever of the cardiograph it showed an extremely prominent one consisting in a pointed elevation nearly as high as the systolic rise itself. This was evident all over the heart and its occurrence seemed to give conclusive evidence that after the onset of muscular relaxation the ventricle was distended and subsided again. The force producing this diastolic distension of the ventricle being its own aspiratory action on the blood in the auricle, the child did not suffer from the ordinary symptoms associated with mitral regurgitation. There was no dropsy or cyanosis, but her symptoms more resembled aortic disease, especially in so far as pallor, faintness, and anginous pains were concerned. She died in a syncopal attack and at the necropsy it was found that there was mitral incompetence but no stenosis, in spite of the presence of the third sound. There was no dilatation of the left ventricle or of the right side of the heart. The left auricle was, however, greatly dilated, holding nearly twice as much as the ventricle. The absence of compensatory dilatation of the ventricle was no doubt due to the adhesion of the pericardium and explained the anomalous symptoms during life.—Dr. H. D. ROLLESTON was glad to find that Dr. Wilson's observations confirmed the hypothesis suggested in a contribution by himself and Professor Roy in a paper published in the *Journal of Physiology* in 1887, in which they had found that the negative pressure in the ventricle amounted to something like 60 millimetres of mercury—an equivalent of quite half the driving force (positive pressure) of the ventricle. He suggested that the mid-diastolic murmur was due to this suction action of the left ventricle. Dr. A. L. Galabin in 1873 had attributed this murmur to the irregular contraction of the auricle, but Dr. Wilson's cardiograms confirmed the view that it was due to the action of the left ventricle. He much preferred the term "mid-diastolic murmur" as being a more suitable term than the "third heart sound."—Dr. A. E. SANSOM remarked that he did not

[1] THE LANCET, Dec. 16th, 1899, p. 1660: "Surgical Treatment of the Ascites of Cirrhosis by the Artificial Production of Peritoneal Adhesions."

like the term "third heart sound" because the sound did not belong to the normal heart. It was a murmur interpolated in the diastolic period, and it was only heard under morbid conditions. It was one of considerable practical importance. There were several kinds of sounds heard in this the diastolic period. In the first place there was what was called the reduplicated second sound; secondly, there was the series of murmurs described by Bristowe as early, middle, and late diastolic sounds; and thirdly, there was what was known as the cantering rhythm of the heart. All observers were agreed that the reduplicated second sound had its origin at the mitral orifice, and he (Dr. Sansom) believed that it generally indicated (at any rate, in a young subject) the supervention of mitral stenosis; he believed that its causation was the suction action of the ventricle. But sometimes the murmur might be due to adhesions; it might also be due to enlargement of the ventricle or the auricle might be too weak or too strong.—Dr. A. MORISON thought that in discussing this subject they should be certain that different speakers had the same phenomena in mind. He drew a sharp distinction between the reduplicated second sound heard at the apex in mitral constrictions and any form of so-called cantering rhythm or bruit de galop. He had been in some doubt as to the phenomena which the author of the paper had in view until he heard him phonetically imitate the sound he desired to explain. It appeared to him that the sound which Dr. Wilson imputed to the inrush of blood from the auricle during diastole against the mitral segments was in reality a phenomenon to be accounted for by the transmission to the apex of an accentuated and reduplicated basic second sound, obscured at the base and modified in tone by such transmission. The careful observation of tone or timbre of sound he thought of the highest importance in this connexion. He regretted that he could not agree with Dr. Sansom that the audibility of such a sound in the scapulo-vertebral region, especially in young subjects, indicated a mitral situation as its place of origin. He purposely refrained from the discussion of any form of cantering rhythm—a phenomenon associated with other conditions than mitral disease—which he thought could be otherwise accounted for than on the hypothesis advanced by Dr. Wilson.—Dr. SEYMOUR TAYLOR remarked that the subject was not yet altogether worked out but in all probability the sound under discussion indicated mitral stenosis. He thought that the inrush of blood during the diastolic period might be likened to the rush of people into a theatre. He did not like the term "reduplicated second sound," because the sound, however caused, was essentially pathological. All murmurs were produced by muscular force and their intensity depended upon the force behind it. It followed, therefore, that a loud murmur in mitral stenosis was a good sign. When the murmur disappeared it indicated that the auricle and ventricle were becoming weak.—The PRESIDENT remarked upon the intricacy of the subject. He would like to know the relation of the sounds described by Dr. Wilson to the cardiac impulse.—Dr. FORBES ROSS remarked that he could not quite follow Dr. Wilson's descriptions. How was it possible that the valves could be kept tense by muscular relaxation? A presystolic murmur was often called a rough first sound and he believed that many of these obscure murmurs might be caused by roughening of the pericardium.—Dr. WILSON, in reply, remarked that without doubt a great variety of murmurs could be heard which were produced outside the heart. The murmur to which he referred corresponded to one of the forms of the cantering bruit. As a rule, the presence of the third sound to which he referred was an indication of mitral stenosis. He believed that the filling of the ventricle was entirely due to ventricular suction, excepting just at the end of the diastole.

Dr. HUGH THURSFIELD exhibited a child of about seven years of age who was the subject of Widespread Rheumatic Nodules on the Scalp, Arms, and elsewhere, and Rheumatic Periostitis of the Right Tibia, in whom there was no history or evidence of syphilis.

OBSTETRICAL SOCIETY OF LONDON.

Ectopic Pregnancy.—Notes on Cases and Exhibition of Specimens.

A MEETING of this society was held at 20, Hanover-square, on Nov. 7th, Mr. ALBAN DORAN, the President, being in the chair.

Dr. E. O. CROFT read a paper on an Anomalous Case of Ectopic Pregnancy, probably Ovarian. The history and physical signs pointed to a diagnosis of some form of extra-uterine gestation, and the sac and its contents, found entire, were removed by abdominal section. There was free bleeding from rupture during the operation, and although it was soon controlled by ligature of the broad ligament the patient did not rally and died a few days afterwards. The necropsy revealed an absence of peritonitis and the pelvic organs were removed for further examination. The sac, before rupture, contained the complete ovum—a fœtus of about four months' growth, with placenta, membranes, and amniotic fluid. There was no blood or clot in the sac. Its relations were those of an ovarian tumour with short pedicle. The surface of the cyst contained follicles (? Graafian), and no separate structure corresponding to an ovary was evident on the same (right) side. The microscopical evidence of ovarian tissue in the wall was uncertain. The Fallopian tube was present and was uninjured; the fimbriated end was free and patent, and the layers of the mesosalpinx were undisturbed. The uterus was intact and the appendages on the opposite (left) side were normal. The possibility of the pregnancy being ovarian was suggested.

Dr. A. H. N. LEWERS then read a paper on a case of Repeated Ectopic Gestation in the same patient on whom laparotomy was performed on each occasion. The case was that of a patient, 29 years of age, who had been the subject of ectopic gestation on two occasions. There had been no uterine pregnancy. The first ectopic pregnancy occurred early in 1894. Laparotomy was performed in March, 1894, and the left Fallopian tube was removed, containing a tubal mole. This specimen was reported on by a committee of the Obstetrical Society of London.[1] The ostium of the tube was open but not dilated. The case on that occasion was one of threatened tubal abortion. In May, 1900—i.e., after an interval of a little more than six years—the patient was again the subject of ectopic gestation and laparotomy was again performed. The parts removed consisted of the right Fallopian tube and ovary and a tubal mole. The ostium of the tube was widely dilated and the mole had either been expelled into the peritoneal cavity or was lying loose in the dilated ostium at the time of the operation, so that on the second occasion the case was one of complete tubal abortion. The patient recovered well on both occasions. Reference was made to Dr. J. Haig Ferguson's paper on Repeated Ectopic Gestation in the same Patient[2] from which it appeared that, while there was a considerable number of cases reported of repeated tubal pregnancy in the same woman, laparotomy performed twice on the same woman was only mentioned in 14 cases. According to the same authority the interval between the ectopic pregnancies in the same patient has varied from six weeks to five years. In the case described by Dr. Lewers the interval, which was more than six years, seemed therefore to have been exceptionally long. Reference was also made to Dr. Edgar's paper on the same subject, published in the *Edinburgh Medical Journal* for 1899.

Dr. P. HORROCKS thought that the specimen shown by Dr. Croft was well worthy of further examination and report by a sub-committee. He did not think that the fact that ovarian tissue was not found in all parts of the wall was proof that it was not an ovarian ectopic gestation. Neither could he see any *a priori* reason why an ovum should not become impregnated and develop whilst still in a Graafian follicle. Referring to Dr. Lewers's case Dr. Horrocks said that he had seen one or two instances of such repeated tubal gestations. He related a case in which he had removed a ruptured tubal gestation sac eight years ago and again six years ago. Dr. S. B. Jolly of Sydenham had diagnosed the condition on the second occasion, but Dr. Horrocks rather doubted its probability owing to the extreme rarity of a repeated tubal gestation. The diagnosis was, however, confirmed by operation and verified by chorionic villi being microscopically proved to be present.

After some remarks by Dr. W. S. A. GRIFFITH,

Mr. J. BLAND-SUTTON said that he could not satisfactorily discuss the question of ovarian pregnancy on a specimen in which the gestation had gone so far as it had in Dr. Croft's specimen. He would be convinced of ovarian pregnancy when he saw "an early embryo and its membranes contained in a sac in the ovary." This he considered a fair requisition and it corresponded with the facts on which the present

[1] Transactions of the Obstetrical Society of London, vol. xxxviii., p. 87.

[2] Edinburgh Medical Journal, 1899, p. 145.

knowledge of tubal pregnancy was based. He referred to the case reported by Catherine van Tusschenbroek.

After a few remarks by Dr. HEYWOOD SMITH,

The PRESIDENT said that he himself had indicated sources of error in accounts of cases of alleged primary ovarian gestation in his notes on Dr. Arthur Beale's case of minute fœtus found in the peritoneal cavity. The notes were published in the Transactions of the Obstetrical Society of London for 1893. Still, it was unscientific to insist that this form of gestation was impossible. Perhaps Dr. Croft's specimen, which would be examined by a committee, might be quoted in future days as historical, being, with Catherine van Tusschenbroek's report, the evidence which first convinced scientific observers of the possibility of primary ovarian gestation. The fact that both Fallopian tubes were normal did not preclude the possibility of very recent tubal gestation in one of them. This fact was interesting in relation not only to Dr. Croft's case but also to that of Dr. Lewers. The President had reported [3] a case where repeated gestation had probably occurred within a very short interval, remarking that "tubal abortion very early in pregnancy need not necessarily spoil the tube for its functions or prevent subsequent pregnancy in its canal."

Dr. CROFT, in reply, thanked the Fellows for the interest which they had taken in his paper and would much appreciate the opinion of a committee appointed to examine further and to report on the specimen. He then referred briefly to a case that had occurred in the practice of a colleague since the paper had been sent in. The patient was operated upon for abdominal hæmorrhage which was thought to be due to a ruptured tubal gestation. On the abdomen being opened and the blood being removed the tubes were found normal and free, but the bleeding was found to be proceeding from a small ruptured cavity in an ovary of ordinary size. The cavity proved to have the structure of a corpus luteum and its contents to be a small ovum presenting on microscopical examination definite evidence of chorionic villi. He thought that this specimen, which he had himself seen, would be likely to accord with the criteria of a primary ovarian gestation as stated by Mr. Bland-Sutton. Dr. Croft hoped that he would be able to persuade the owner (Mr. G. P. Anning of Leeds) to bring his specimen before the society at a future meeting.

Dr. LEWERS also briefly replied.

The following notes on cases were read and specimens were shown:—

Dr. A. E. GILES: Note on a case of Fibromyoma of the Uterus in a patient, aged 23 years, with Remarks on Enucleation and Myomectomy.

Mr. J. D. S. NODES and Dr. FRANK HINDS (introduced by Dr. Herbert Spencer): Note on a Fatal Rupture of an Aneurysm of the Splenic Artery, death occurring immediately after labour.

Mr. BLAND-SUTTON: A Tubal Mole in process of Expulsion from the Fimbriated End of the Tube (progressing tubal abortion).

Mr. J. H. TARGETT: Acute Suppurative Ovaritis showing Streptococcal Infection, with Microscopical Section.

Dr. ROBERT WISE: A New Douche.

The specimens were discussed by the PRESIDENT, Dr. ROBERT BOXALL, Dr. GRIFFITH, Mr. G. E. HERMAN, Dr. HORROCKS, Dr. AMAND ROUTH, and Dr. HERBERT SPENCER.

OPHTHALMOLOGICAL SOCIETY.

Influence of the Eye on the Growth of the Orbit.—Etiology of Lamellar Cataract.—Exhibition of Cases and Card Specimens.

AN ordinary meeting of this society was held on Nov. 8th, Mr. G. ANDERSON CRITCHETT, the President, being in the chair.

Professor W. ERNEST THOMSON read a paper on the Determination of the Influence of the Eye on the Growth of the Orbit by Experimental Enucleation of One Eye in Young Animals. The research was undertaken in order to determine whether removal of an eye in early life resulted in faulty development of the orbit. Such faulty development had been both asserted and denied, although experimental evidence had seemingly been hitherto wanting. One eye in a series of rabbits was enucleated under ether about the twentieth day of life. The animals were kept for periods varying from six to eight months, and were then killed. The orbits were carefully measured and a very marked difference between the normal side and the anophthalmic side was found to exist. The deficiency was uniformly distributed over the length, height, and depth of the orbit, and it amounted to something like 10 per cent. in the macerated skull and from 10 to 15 per cent. in the wet condition. It thus appeared that the greater fault was in the development of the bones and the lesser in that of the soft tissues. (Lantern slides were shown which brought out the various points and the skulls were themselves exhibited.)—The PRESIDENT thought the paper one of great interest and practical importance. He strongly advocated the insertion of artificial eyes early.—Dr. R. GRUBER thought that the attachment of the muscles to the eyeball and the increased blood-supply consequent on the normal functions of the orbit being exercised had far more to do with the development of the orbit than had the mere presence of an artificial eye in the conjunctival sac.—Professor THOMSON briefly replied.

Mr. NORMAN G. BENNETT read a paper on the Etiology of Lamellar Cataract. He began by referring to the measurements of lenses taken by Bernard Duband and Treacher Collins, either ophthalmoscopically during life or after removal of the lens, from which it appeared that the diameter of the opaque zone was never larger than that of the lens at birth and that, therefore, either the lesion was occasioned before birth or the part affected was not the most peripheral at the time of its occurrence. He then described the structure of the hypoplastic teeth usually associated with lamellar cataract and detailed the dates of calcification of the two dentitions according to the investigations of Röse, showing what parts of the teeth might be affected by any cause acting during the first two years of life. Mr. Bennett described minutely the teeth as they existed in 22 cases of lamellar cataract which he had collected. They naturally fell into two classes on the basis of the extent of enamel affected, but in both classes it appeared evident, if the facts were taken in conjunction with the dates of calcification as investigated by Röse, that the affection had its commencement almost immediately after birth. Its period varied considerably in one class of cases and appeared to be about two years in the other larger class. The exact causation had long been a matter of discussion. After referring to the various causes that had been suggested from time to time, Mr. Bennett described a large number of cases of hypoplastic teeth, showing that among those not associated with lamellar cataract the same uniformity of type was not met with, the determining cause of the defect obviously having occurred at a much later date in a large number of cases. From a number of cases with definite histories he showed that this latter type of tooth was frequently, though not always, the result of an exanthematous fever, whereas those more frequent cases of teeth affected soon after birth were often associated with a history of convulsions and general disturbance of health of an indefinite kind. Sometimes the teeth would have two or more horizontal depressions corresponding with a series of definite attacks of illness. The inference was, then, that lamellar cataract was a disease of early infantile life occasioned by some general derangement of health, the most probable being errors of diet and nutrition. In emphasising this conclusion Mr. Bennett referred to the developmental similarity between lens and enamel, and cited an opinion of Mr. Collins to show that the inferences which he drew were not necessarily inconsistent with those afforded by the measurement of lenses referred to above, but that lamellar cataract might be the result of contraction of the nucleus of the lens some time after birth.—The PRESIDENT asked Mr. Bennett whether he had noticed the disease to occur in many members of the same family, and he recounted a case which had occurred in his own practice in which there was a very strong family history. The father suffered from lamellar cataract, two of his children were affected with the disease, and he had seven cousins affected, as well as one niece and two sisters.—Mr. H. B. GRIMSDALE referred to a similar instance of eight persons related to one another being so affected in three generations.—Mr. W. ADAMS FROST thought that it was exceptional for other members of the family to be affected.—Mr. TREACHER COLLINS had investigated 10 cases of congenital cataract, but in none of them was the enamel

[3] Brit. Med. Jour., vol. ii., 1891, p. 789.

defective.—Mr. JOHN GRIFFITH expressed his strong opinion that the disease was a congenital and not an infantile one, referring it to defective development of enamel cells in the sixteenth week of fœtal life rather than to anomalous calcification.—Mr. BENNETT briefly replied, and in answer to the President's question he stated that he had not carefully investigated the family history.

The following cases and card specimens were shown:—

Mr. SIMEON SNELL: Epithelioma of the Cornea. The patient was a soldier aged 45 years, with a history of injury seven years ago. In May, 1898, the growth was removed, but it recurred. Mr. Snell first saw the patient in August, 1900, when the growth filled the inter-palbebral space. The eyeball was enucleated, and the growth was shown to be an epithelioma.

Mr. JOHN GRIFFITH: A specimen of Osteo-sarcoma of the Orbit.

Mr. TREACHER COLLINS and Mr. A. VERNON FORD: A case of Bullet Wound of the Orbit followed by Blindness of Both Eyes. The patient was with Admiral Sir E. H. Seymour's expedition for the relief of Pekin. He was shot through the head with a bullet, and it was found that in one eye the choroid was ruptured while in the other the retina was detached.

Mr. A. W. ORMOND: A Chancre of the Upper Lid at the Retrotarsal Fold.

BRITISH GYNÆCOLOGICAL SOCIETY.

Exhibition of Specimens.—Salpingo-oöphorectomy.—Some New Methods in Pelvic Operations on the Female.

A MEETING of this society was held on Nov. 8th, Dr. H. MACNAUGHTON-JONES being in the chair.

The following specimens were shown:—

Dr. R. T. SMITH: A case of Degenerating Fibro-myoma.

Mr. CHARLES RYALL: A case of Hysterectomy for Fibro-myoma.

Dr. MACNAUGHTON-JONES: (1) A case of Hysterectomy for Fibro-myoma; and (2) a case of Broad Ligament Cyst.

In the discussion on these specimens the following speakers took part: Dr. HEYWOOD SMITH, Dr. HERBERT SNOW, Dr. ARTHUR GILES, Dr. J. J. MACAN, and Mr. RUTHERFORD MORISON.

Dr. MACNAUGHTON-JONES read a short communication on a case of Salpingo-oöphorectomy.

Mr. RUTHERFORD MORISON (Newcastle-on-Tyne) read a paper and gave a lantern demonstration on Some New Methods in Pelvic Operations on the Female. The operations considered were as follows. 1. Abdominal resection of the sigmoid or upper portion of the rectum. This operation was intended for cases in which suppuration of the left uterine appendages involved the bowel to such an extent as to demand its removal or in which the abdomen was opened for a cancerous growth of the sigmoid in mistaken diagnosis for a diseased and enlarged ovary. The steps of the operation were: (1) the diseased bowel was excised; (2) a glass bobbin, with indiarubber tube attached, was tied tightly into the upper end of the sigmoid flexure; (3) the indiarubber tube was passed down from above through the lower cut and into the rectum, where it was aided to pass through the anus by the finger of an assistant; (4) the tube was drawn upon till the ligature on the upper cut end of the bowel was inside of the lower cut end of the bowel; (5) a ligature was then passed round immediately below the lower cut end and tightly tied (this made the junction watertight); and (6) the tube was again pulled upon, whilst the lower portion of the bowel immediately below the button was steadied till by traction from above a short intussusception was produced. This was maintained by a few Lembert's sutures. In from four to eight days the ligatured sloughing bowel separated and the tube was thus released. He had done this operation 14 times—in two cases for complicated pyosalpinx and in 12 for malignant disease. Seven patients died. The percentage mortality was therefore high but might be diminished by avoiding the mistake he had made of performing this operation in cases of obstruction with loaded colon, for experience had taught him that in these cases the colon should be emptied by a preliminary colotomy before a radical operation was attempted. 2. An operation for certain forms of parametric abscess. Mr. Morison divided cases of pelvic cellulitis into three classes: (1) the floor of the broad ligament was involved—the abscess pointed towards the vagina; (2) the cellular tissue of the broad ligament between its peritoneal folds was invaded—the abscess pointed above Poupart's ligament; and (3) the lymphatic vessels and glands alongside the iliac vessels were affected and the abscess was found high up on the back wall of the pelvis or in relation to the psoas and iliacus muscles. In the third form the pus was out of reach from the vagina and having had two fatal cases in which he evacuated the pus by opening the abdomen he devised the following plan. The abdomen was opened by an incision three or four inches long made in the middle third of a line drawn from the centre of the back of the ilio-costal space behind to one inch above the symphysis in front. Through this incision the diagnosis was confirmed by palpation of the uterus, ovaries, and tubes, and the relations of the abscess were ascertained. The incision was next prolonged to the back of the ilio-costal space, through the oblique and transversalis muscles, leaving the transversalis fascia and peritoneum intact. The peritoneum and fascia were then held forward with forceps and with the left hand in the abdomen as a guide the index finger of the right hand introduced posteriorly opened the abscess by bluntly perforating the transversalis fascia under the thickest part of the swelling. A drainage-tube and iodoform gauze packing round it completed this part of the operation. Twenty cases operated on by this method had all recovered. 3. The control of the uterine arteries in abdominal hysterectomy. Since completing his notes he had found that his plan was neither new nor peculiar to himself. The special point about it was that the uterine arteries were seized with forceps and the uterus was cut away before the vessels were ligatured. 4. Operation for incontinence of urine in the female. In a case of incontinence with a patulous urethra he performed the following operation. An incision one inch long was made in the middle line of the abdomen midway between the umbilicus and the symphysis down to the peritoneum. The patient was then placed in the lithotomy position and a circular incision was made round the orifice of the urethra. A second incision was made through the anterior vaginal wall along the course of the urethra and for one inch on to the base of the bladder. The urethra and neck of the bladder were then entirely separated. A pair of closed hæmostatic forceps was next passed down from the opening above the pubes close to the pubic symphysis and into the vagina; the end of the urethra was caught in the forceps, drawn upwards, and attached to the skin of the incision in the abdominal wall. The remainder of the incision was closed round the urethra and an indiarubber catheter was tied in the bladder and projected from the anterior abdominal wall. On the seventh day the dressings were dry and the wound was healed. He had only hoped to make a continent bladder which could be readily emptied by the catheter, but more had been gained, for the bladder would now hold one and a half pints of urine against every effort to make it leak, such as coughing, straining, and alterations in posture; and when the patient was in good form she could easily and entirely empty it by voluntary effort.

In the discussion on the paper the following speakers took part: Dr. SNOW, Mr. SKENE KEITH, Dr. P. Z. HEBERT, Dr. WILLIAM TRAVERS, Dr. HEYWOOD SMITH, Dr. E. A. NEATBY, Mr. RYALL, Dr. R. H. HODGSON, Dr. GILES, and Dr. MACNAUGHTON-JONES; and Mr. RUTHERFORD MORISON replied.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases and Specimens.

A MEETING of this society was held on Oct. 19th, Dr. A. ERNEST SANSOM being in the chair.

Dr. THEODORE FISHER showed a specimen of Rheumatic Dilatation of the Heart from a patient who died from cardiac failure one year after an attack of acute rheumatism. The heart was hypertrophied as well as dilated and weighed 19½ ounces. The valves were healthy and the pericardium was adherent only over a small area, about two inches square, near the apex of the left ventricle. Dr. Fisher mentioned another case in a child, 11 years of age, with rheumatic nodules, where there was an almost entire absence of valvular disease. The heart was found to weigh 11¼ ounces.—Dr. J. H. SEQUEIRA discussed the rôle played by the pericardium in such cases and pointed out that an inflamed and softened pericardium could

not interpose that resistance to dilatation of the heart present in the healthy condition.—Dr. F. G. PENROSE referred to the work of Dr. F. H. Poynton whose experience was to the effect that myocarditis was generally present in cases of dilatation.—Dr. WILLIAM EWART remarked that the action of the cardiac valves and walls (as pointed out by Dr. Sansom) might suffer from fibrosis developing at the base of the heart, such as might result from pericarditis even when the latter did not lead to great effusion or adhesion. In a heart the valves of which were already damaged this additional influence might aggravate the valvular defect and explain the dilatation.—Dr. FISHER, in reply, stated that in his first case there had been a slight interstitial myocarditis. In his second case there was naked-eye evidence of recent degenerative changes, and Professor Stanley Kent had found in cultures from the heart muscle a diplococcus resembling that recently described by Dr. Poynton and Dr. A. Paine.

Mr. R. CLEMENT LUCAS exhibited an infant, six months old, in whom the Rectum Terminated in the Vagina. The anus was absent and there was no depression at its normal site. The rectum opened at the posterior part of the orifice of the vagina, between the hymen and the fourchette, by an aperture of about the size of a crow's quill. The deformity had passed unnoticed until the child was four months old. Mr. Lucas proposed, first, to establish a permanent anus in the normal position, and, later, to endeavour to close the vaginal aperture by a plastic operation.—Mr. ALFRED H. TUBBY had had a similar case under his care at the Evelina Hospital and had operated twice for the relief of the condition with a good result. His patient was a year old.

Dr. JAMES TAYLOR showed a lad, five years of age, affected with Mongolian Imbecility. The patient had a short head, somewhat compressed antero-posteriorly, epicanthal folds, and the mental peculiarities usually associated with this condition. His temper was good. The limbs and little fingers were free from deformity. The child, however, showed a curious power of over-extension of the fingers (and, indeed, of all the joints). There was a suspicion of congenital syphilis.—Dr. FLETCHER BEACH said that in his experience syphilis accounted for only 1 per cent. of these cases. He pointed out that thyroid extract was useless in Mongolian imbecility.—Dr. G. E. SHUTTLEWORTH stated that about 5 per cent. of the children at the Royal Albert Asylum were Mongolian imbeciles. He had found deformity of the little finger common in many of the children of Mongol type presented for admission to the special schools of the London School Board. He was inclined to consider that a Mongol represented permanently a fœtal stage of development—in other words, that such a child came into the world unfinished, and remained so, more or less, all his or her life. Some 40 per cent. of such children were found to be the youngest members of large families, and anything that depressed the procreative powers of the mother might conceivably be a factor in the production of the cases.—Dr. TAYLOR, in reply, said that with regard to syphilis Dr. G. E. Sutherland in 25 Mongols had ascertained that syphilis was present in 11. He thought that Mongols were not uncommonly the first-born and not the last-born of a family.

Mr. TUBBY showed a child, aged three months, with Cephalhæmatoma over the Right Parietal Bone. The labour had not been protracted, the presentation was vertical, and forceps had not been used. The swelling, which had gradually become larger, was not noticed until a day or two after birth. The tumour was not hot or tender or red; its margin was crateriform and hard where it merged with the skull.

Mr. TUBBY also exhibited a girl, aged six years, suffering from a Congenital Anterior Dislocation of the Right Hip and showed some radiograms. The summit of the great trochanter lay an inch above Nélaton's line and the head of the femur could be felt lying posteriorly to the anterior superior iliac spine. An attempt had been made to remedy the condition by forcible movements after dividing the tendons of the adductors, sartorius, and the tensor vaginæ femoris, but the deformity had recurred.—Mr. J. JACKSON CLARKE, in connexion with this case, brought forward several interesting skiagrams. One of his patients, a girl, aged two years, had been treated by the method adopted by Mr. Tubby and was now practically cured. He agreed with Mr. Tubby in thinking that up to the age of about four years these cases could be cured by operation.

Mr. SYDNEY STEPHENSON showed a case of early Myxœdema associated with Ectropion in a girl, 12 years of age. The skin over the cheeks, nose, upper lip, and eyelids was pinkish and swollen, so that the lines of expression were obliterated, especially on the left side of the face. The swelling was firm and did not pit on pressure. Around the eyelids the skin was rough, dry, and covered with fine, branny scales. There was no general œdema of the body. The hands and feet were somewhat "pudgy." The nails were brittle. Speech and movements were slow and deliberate. The lower lids and corresponding puncta lacrymalia were slightly averted. The upper lids were congenitally short. The isthmus of the thyroid gland could be felt. There were no supra-clavicular pads. The urine was free from albumin. The temperature was 98·2° F., the respirations were 19, and the pulse was 80. The child was sensitive to cold.—Dr. PERCY G. LEWIS, in connexion with this case, showed photographs and gave details of myxœdema in young subjects.—Dr. FISHER recalled a case of intermittent albuminuria which appeared much like this.—Mr. STEPHENSON, in reply, said that the urine had been examined seven or eight times, but albumin had never been found. The character of the œdema, the slowness of the speech, and the "stodginess" of the hands appeared to militate against the case being one of intermittent albuminuria, as suggested by Dr. Fisher.

Dr. G. E. SUTHERLAND showed an instance of Extreme Adiposity in an infant, aged eight months, who weighed 29½ lb. The child had been fed exclusively upon the breast. The general health had been good, there had been no gastro-intestinal disturbances, and, although extremely fat, the infant could sit up and move her limbs actively. There was no family history of lipomatosis, but two other children had also been stout as infants. In this case the fat was diffused generally over the body and extremities. There was slight rachitis. Examination of the maternal milk showed the presence of 8·2 per cent. lactose and of 0·44 per cent. proteids, the other constituents being normal.—Dr. SANSOM observed that the child had a placid, healthy expression, and he thought that there was no adiposis neurotica. It was remarkable that the milk included so large a proportion of lactose, an observation that he supposed had been confirmed by repeated analyses.—Dr. EDMUND CAUTLEY inquired whether the infant had been given anything besides mother's milk. He had seen an infant who weighed 27½ lb. at the age of six months, but the parents had been in the habit of giving articles of food other than breast milk.—Dr. WAYLAND C. CHAFFEY regarded the case as one not of lipomatosis but of simple increase of fat.—Dr. SUTHERLAND, in reply, said that he thought the child did not suffer from lipomatosis, at least in the pathological sense. Four ounces of the breast milk, drawn off in the morning, had been analysed by Mr. Pakes of Guy's Hospital. Dr. Sutherland was satisfied from his inquiries that the child had had no food other than breast milk.

Dr. J. H. SEQUEIRA showed a case of Polyuria in a child, aged three years. Excessive thirst and increased frequency of micturition had been noticed since the age of eight months following an attack of whooping-cough. There was no history of injury. On coming under Dr. Sequeira's care the child weighed 16¾ lb., the skin was dry and pale, and there was evidence of rickets. The temperature was normal; there were no signs of disease of the abdominal or thoracic organs. The pale urine had a specific gravity of 1010 and an alkaline reaction. It contained albumin (at times reaching 1 per cent.), but no deposit or casts. The quantity of urine averaged 38 ounces a day and once it reached as much as 47 ounces. The child had lost a pound and a quarter in weight in the five months during which he had been under Dr. Sequeira's observation. The condition appeared to depend upon a chronic dilatation of the renal arteries and as such would probably be classed as one of diabetes insipidus, although the constant alkalinity of the urine and the occasional presence of albumin were held to militate against this view. Dr. Sequeira found that the urine could be rendered temporarily acid by the administration of the acid phosphate of sodium in five-grain doses three times a day, as advised by Dr. Robert Hutchison.—Dr. SANSOM, who endorsed the diagnosis, regarded the case as a very valuable one.—Dr. LEWIS had been working at an allied subject—namely, bed-wetting in children, which he believed to be due to polyuria and to be associated with the indigestion of starchy foods. It could be stopped at once by an anti-diabetic

diet. He did not deem it necessary to limit the amount of liquid taken. Dr. Lewis regarded the present case as belonging to that category.

Dr. GEORGE CARPENTER showed a case of typical Epiphysitis in a child, seven weeks old. The family history suggested syphilis. The child was anæmic and "snuffled" loudly. Both upper extremities were affected. The cutaneous manifestations present were not characteristic. An X-ray photograph failed to demonstrate the obvious changes at the epiphyses.

LIVERPOOL MEDICAL INSTITUTION.

Unusual Form of Rodent Ulcer.—Dermatitis Herpetiformis.—Pulmonary Tuberculosis.—Disease among Natives in Nyassaland.

THE third meeting of the session of this society was held on Nov. 8th, Dr. A. BERNARD, the senior Vice-President, being in the chair.

Mr. F. T. PAUL showed a patient suffering from an Unusual Form of Rodent Ulcer and said that it was unlike anything he had ever seen before. It was a very large tumour of the left side of the face, measuring five and a half inches across and from two to three inches in thickness, and had the structure of the glandular type of rodent ulcer. There were no secondary deposits. The patient was a man aged 43 years. At 19 years of age he knocked the skin off the cheek below the eye; this never properly healed and at 32 years of age the late Mr. H. O. Thomas excised a small sore; at 34 years of age he was operated on by Mr. Robert Jones; and at 35 years of age by Mr. Paul who examined the growth and pronounced it rodent ulcer. It returned within a year and had been growing since to its present dimensions. Mr. Paul considered all forms of so-called rodent ulcer to be varieties of carcinoma of the appendages of the skin. The ordinary form was carcinoma of the sebaceous glands, but cases like the present probably originated in the sweat glands.—Mr. RUSHTON PARKER remarked that any difficulties of nomenclature alluded to by Mr. Paul probably arose from the use of the term "rodent ulcer" in the British Islands and abroad the terms "carcinoma," "haut-krebs," or "skin cancer" were used for the same class of cases, irrespectively of variety. He considered Mr. Paul's case to be an ulcerated carcinoma of the skin of the face but not "rodent" in a physical sense, as there was a gain rather than a loss of substance; but its histological characters were obviously a variety of what was known as "rodent carcinoma."

Dr. J. STOPFORD TAYLOR read notes of a case of Dermatitis Herpetiformis Multiformis in a man, aged 66 years, which ran an acute course in about 14 days, and when hopes of recovery were entertained pneumonia supervened and death resulted. An unusual and unprecedented symptom was the great quantity of serum which exuded from the erythema-multiforma-like type of the eruption situated upon the back and buttocks. This condition was rightly described as a chronic disorder, yet this was his second acute case followed by a fatal termination.—Dr. F. H. BARENDT considered that the pneumonia was incidental and not a consequence of the skin lesions. He alluded to herpes gestationis which clinically was the same disease occurring in pregnancy. The etiology was still obscure; probably it would be cleared up when their knowledge of toxins became more exact and definite.—Dr. R. J. M. BUCHANAN referred to two cases; in one the herpetic eruption resembled confluent small-pox, but the association of croupous pneumonia cleared up the uncertainty of diagnosis; in the other the herpetic eruption appeared after the acute pneumonia was advanced and the pneumococcus was present in the exudation from the vesicles.—Dr. STANLEY A. GILL called attention to the connexion there seemed to be between skin and pulmonary diseases and cited a case in which a patient when cured of eczema suffered from asthma which was only relieved by the reappearance of the eczema.

Dr. BUCHANAN read notes on cases of Pulmonary Tuberculosis in reference to the probable origin of the invasion. In many cases the tuberculous history was definitely referred to an attack of so-called influenza. He offered the suggestion that many of the so-called sporadic attacks of influenza were probably the expression of the initial infection with the tubercle bacillus and that special attention should be given to the diagnosis of tuberculosis in its primary invasion. Dr. Buchanan related three cases of pulmonary tuberculosis in which he had traced the source of infection. The cases, previously healthy, were infected in offices where clerks suffering from consumption had been employed. He had been able to persuade the employer in one of the cases to have his offices disinfected and the office books stoved.—Dr. A. G. GULLAN cited a case under his care where he had been able to trace a definite source of infection. He considered the stage of convalescence following true influenza, which was always associated with great debility, very liable to the infection of tuberculosis.—Dr. C. J. MACALISTER directed attention to the fact that a number of seamen suffered from phthisis notwithstanding their open-air life and he advocated care in regard to cleanliness and ventilation of their quarters.

Mr. J. S. KELLETT SMITH read a paper upon Disease among the Natives of the Nyassaland Plateau, compiled from notes in his medical diary kept during the exploration of the country in the years 1895–96. Anthropometrical statistics of various tribes were given and the general physical development of the native was described. Points of interest brought forward were the existence of tetanus and rabies, the absence of deformities, and the question of hernia. Umbilical herniæ were shown to be very frequent and to disappear spontaneously during the earlier years of life. Inguinal herniæ were practically unknown and Mr. Smith thought that this was accounted for chiefly by the position in which the newly-born infant was nursed, with the legs embracing the mother's flank and the inguinal regions supported by the conforming pressure of the mother's side, and in later life by the posture adopted by the native when disposing himself to the necessary eliminating function. Syphilis seemed to be incapable of permanence among the natives of this country. All scars tended to become keloid, but the keloids never took on malignant tendency. Especially was it notable that in this primitive part of Africa malignant tumours, whether of epithelium or connective tissue, seemed to occur so rarely as to be practically unknown.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Undescended Testicle, Congenitally Misplaced Testicle, and Congenital Deficiency of Testicle.—Multiple Tumours of Unusual Type.—Exhibition of Cases and Specimens.—Election of Office-bearers.

THE first ordinary meeting of the eightieth session of this society was held on Nov. 7th, Dr. A. G. MILLER, the President, being in the chair.

Professor T. ANNANDALE read a paper on the Operations for Undescended Testicle and for Congenitally Misplaced Testicle, with a Note of a Rare Form of Congenital Deficiency of the Testicle. He stated that the condition of misplaced testicle was not common. The testicle might, however, be situated (1) on one side of the perineum; (2) in front of the pubes at the root of the penis; or (3) in the region of the saphenous opening. In any situation it might become very troublesome on account of inflammation or if associated with a hernia. The testicle underwent degeneration when it was not in the scrotum, and it thus became functionless when it was retained in the abdomen or in the inguinal canal. Mr. Joseph Griffiths's experiments with the testicle in dogs in this connexion were narrated briefly. In the *British Medical Journal* of Jan. 4th, 1879, Professor Annandale described a case in which he had successfully removed the testicle from the perineum and replaced it in the scrotum in a child aged three years. The important details of the operation were: firstly, the incision, then the careful exploration of the spermatic cord; the drawing out of the cord and testicle and the division of all attachments; the opening up of the scrotum, placing the testicle there, and fixing it by catgut sutures. If the cord were too short it might be lengthened by careful traction and division of the cremasteric fibres. The operation should be performed in early childhood. In the case of undescended testicle much trouble might arise from inflammation or involvement in a hernial sac. In the child attempts to bring it down into the scrotum should be made first. Usually such testicles were small and atrophied, yet a chance to develop should be afforded them by replacing them in the scrotum. If one testicle were already in the scrotum there was no such great

indication for replacing the other one. In the case of adults Professor Annandale invariably removed such undescended testicles when he had to operate for hernia. In young persons an attempt to replace the testicle and to keep it down by steady traction by catgut stitches should be made. Congenital deficiency of the testicle was comparatively rare, but two cases had lately come under his observation. In the first case the patient was a youth, aged 18 years. The left side of the scrotum was small and at the upper part of it a soft body was felt, but this possessed no testicular sensation. An incision was made over this, exposing the cord and sac. The cord was found to be natural and it ended in this soft body. Both were removed. The other case was almost exactly similar, but it occurred in a man, aged 26 years. The specimens removed showed that the vas deferens was well developed and passed down to the lower part of the soft body ending in a closed extremity. There was no trace of testicular substance. The body in both cases consisted merely of convoluted vas deferens surrounded by a dense envelope. In such rare cases operation might be justifiable in order to relieve mental or local disturbance.—Professor J. CHIENE drew attention to the priority of Professor Annandale's operations for misplaced testicle. He usually classed undescended testicle into three groups: (1) those in the abdomen; (2) those in the canal; and (3) those in a double condition. Where the testicle was in the abdomen he thought it best to leave it; if it were in the canal in children to apply a U-shaped truss in order to try and push it down; and if at puberty to remove it.—Mr. HAROLD J. STILES stated that all undescended testicles might be excised, as in every one which he had examined there was an entire absence of testicular substance.—Mr. SHAW MCLAREN, Dr. WHITE BALLANTYNE, and Dr. THEODORE SHENNAN made some remarks and Professor ANNANDALE replied.

Mr. J. M. COTTERILL and Dr. D. A. WELSH contributed a short note on a case of Multiple Tumours of Unusual Type (with exhibition of patient, specimens, and lantern demonstration). The patient, a man, aged 24 years, had been under observation for more than five years suffering from multiple superficial tumours. Many medical men had seen the case, but no definite opinion had been arrived at. The previous history of the patient was perfectly good, as was also his family history. In 1893, when at work as a joiner, the patient fell a distance of 22 feet and injured his right wrist. He soon recovered, but four months later a small red painless point appeared at the back of the right wrist. He attended regularly twice a week at a hospital in Glasgow. The disease was there called a "gumma." The ulcer did not, however, improve, though it was scraped and cauterised. Erysipelas supervened and the hand became drawn to the ulnar side. The ulcer became larger, irregular, and eroded more deeply, exposing the lower end of the ulna. Sedatives were applied to the ulcer and tonics were administered internally. He was treated at the Edinburgh Infirmary by iodide of potassium in doses of from 10 to 20 grains thrice daily along with mercury. The patient left the hospital and returned in some months' time to have the arm amputated as there was a secondary growth in the epitrochlear gland. The arm was therefore removed above the elbow-joint in December, 1896. Two years later the patient returned with a small pimple on the forehead and a growth on the outer side of the left elbow. The ulcer on the forehead was tender and grew larger, though it was treated. Eventually it was excised, as was also a lump over the deltoid muscle. After another interval of two years he returned on July 4th, 1900, with a growth on the right great toe on the site of an ingrowing toe-nail. There was also a similar growth on the left great toe and another on the second left toe. There were also other ulcers present over the body—e.g., on the nates, on the top of the head, in the scar on the deltoid, &c. All these were removed, including the toes themselves. As regards the views which had been held respecting this case Mr. Cotterill said that with regard to tuberculosis the ulcers had never had the characteristic appearance and there had been no undermining of the edges or secondary glandular infection. As to epithelioma the age of the patient was against that view, as was also the fact of the healing of the ulcers. The absence of glandular involvement and the unusual sites also militated against that diagnosis. As regarded syphilis, the growths had not a gummatous appearance nor had the ulcers had any of the characteristic chamois-leather sloughs; the glands had remained unaffected, and in spite of treatment by iodides and mercury the disease had progressed. The chronicity of the course and the facts of the healing and the absence of internal manifestations almost negatived the idea of sarcoma. As to rodent ulcer the position was extraordinary and every tissue on which the ulcers were situated was eaten away. As to the diagnosis of chronic farcy there was no initial acute attack or any nasal trouble. The patient's mode of life hardly exposed him to such infection and the duration of the disease (seven years) was far beyond the average. Inoculation of guinea-pigs with virus from the patient gave negative results. Mycosis fungoides appeared to be precluded, as there was no fungation in this case but merely erosion.—Dr. WELSH exhibited lantern slides in illustration of this case and stated that, pathologically considered, epithelioma might be dismissed, as also rodent ulcer, for in this case the epithelial structures of the skin were not involved. There were great variations in the structure of the nodules from different areas and so the growths partook more of the nature of the chronic granulomata. Organisms were sought for but none were found.—Professor ANNANDALE thought that the case looked like one of recurrent fibroid tumours which were very liable to degenerate.—Mr. F. M. CAIRD thought that it was closely allied to syphilis and said that some abnormal cases of syphilis did not react to iodide of potassium or mercury.—Dr. NORMAN WALKER gave reasons for thinking that it was a case of rodent ulcer, while Mr. STILES thought it was not in the least like rodent ulcer.

The following cases and specimens were shown:—

Dr. ALLAN JAMIESON showed: 1. A case of Acne Keloid. The patient was a woman, aged 40 years, who had been under treatment seven years previously for boils on the back of the neck. She remained well until about three years ago when these boils reappeared and continued to do so for about 18 months. At the end of this time a small tumour of half the size of a marble formed at the centre of the neck. This underwent progressive enlargement and especially since the birth of the patient's last child. The tumour was now a large dense hard body lying across the back of the neck, freely moveable, and fairly smooth on the surface. It presented numerous apertures, from each of which a brush-like arrangement of hairs protruded. The patient experienced some relief when these hairs were pulled out, and on firm squeezing pus could be expelled from these apertures. The case was one of acne keloid, the fibrous tissue being developed from the former pustules. Its situation was classical. Unna found fault with the name because no comedones were present in this disease. The name might not be etiologically correct and "pustulo-keloid" might be the best name to give it. The keloid developed in the acne scars and lately Dr. Jamieson had seen a young man who had several hundreds of small keloid growths on his back and chest, arranged obliquely from above downwards and outwards. As regards treatment electrolysis might be employed, but no local applications seemed to have much effect. 2. A case of Tylosis Palmæ. In this case the disease could be distinctly traced back for five generations and possibly it extended still further back. The patient was a boy, aged five years. At birth it was noticed that he had a peculiar yellowish semi-translucent thickening of the skin of the palms. At present the lines of flexion were well marked and the thickening covered the entire palms and the same was present on the feet. Sensation over the areas affected was interfered with. There were two other children in the same family, but they were quite healthy. The patient's mother and the other members of the family were similarly affected, as were also the grandmother and seven among the brothers and sisters, and the great-grandmother and some of her family as well as the great-great-grandmother. The disease had chiefly affected the female line. It was related to ichthyosis, if it were not indeed a form of that condition, and it was due to the persistence of the fœtal epitrichium which had not been thrown off after birth. No treatment (as by salicylic acid, &c.) had had any permanent effect, as the skin grew just as thickly afterwards. The mother found it best merely to rub the thickened skin down with pumice stone. 3. A Case for Diagnosis. The patient was a woman, aged 36 years. There were three growths on the upper part of the left side of the chest; they first appeared about three months ago. One of these growths was large and pink and covered by vascular ramifications. The growth was purely in the skin and the axillary glands were not enlarged. The skin between the growths was atrophied and scar-like, though this was not due to previous growths. In all probability it was an epithelioma of the skin.

Dr. G. A. GIBSON showed two cases of Friedreich's

Ataxia. There were five in the family and three members of it suffered from this disease. The patients shown were two brothers, aged 26 years and 21 years respectively. In the eldest the disease began while at school, the first symptom being difficulty in walking. At present he had a complete loss of the cutaneous and tendon reflexes; there was an entire absence of sensory disturbance; the action of the muscles of the whole body was weak, and there was well-marked nystagmus. The same conditions were present in the younger brother, but in his case some of the cutaneous reflexes were retained. In both the characteristic symptoms —e.g., slurring of the words in reading and great tremulousness on attempting voluntary motion—were present. The gait in neither was typically ataxic but it was unsteady, with reeling at times. There was almost no impairment in the field of vision and the Argyll-Robertson phenomenon was not present.

Dr. H. G. LANGWILL exhibited a youth, aged nearly 19 years, who suffered from Regurgitation of Food after Eating. The lad was quite undeveloped physically and appeared to be not older than about 13 years. He was apparently healthy until three years ago, when he began to complain of pain after eating, and this ended in sickness usually within a quarter of an hour. If he did not vomit then the pain lasted for about an hour. There had never been hæmatemesis or melæna. He could retain fish and light food with greater ease. About a year ago along with the pain after eating he began to suffer from regurgitation of food. He could not eat sufficient food to appease his appetite and was consequently always hungry. The pain had not been so severe during the past year, but he had always complained of weight and swelling over the stomach. At present he could only take food in small amounts and he required a long time in which to masticate and to swallow it—as, for example, for breakfast he ate only half a slice of bread and a small cupful of milk and took an hour in which to eat this. The fluid which was regurgitated was always from two to three ounces in amount, alkaline or neutral in reaction, and had never contained hydrochloric acid. He had not grown since the age of 13 years and now he weighed only 3 st. 8½ lb. (two years ago his weight was 5½ st.). Physically nothing wrong could be detected excepting enlargement of the submaxillary glands. On feeding him with the stomach tube not more than two or three ounces could be injected, any excess being regurgitated alongside of the tube.

Dr. BYROM BRAMWELL showed a rare case of Pre-ataxic Tabes. The patient was a man, aged 33 years, who had suffered much from frequently recurring gastric crises. These attacks of vomiting began four years ago and occurred usually at intervals of six weeks. Each attack might last 10 days. During these he had no pain but could retain nothing on the stomach. He had no dyspeptic troubles other than these. At first the vomit consisted of food; afterwards it was bile-stained fluid, then it was coffee-coloured, and lastly it was clear. The vomit was intensely acid, scalding the throat and making it resemble the scarlet fever throat. The pupils were different in size and did not respond to light (Argyll-Robertson sign). The knee-jerks were quite brisk. The patient had not had syphilis. He had had some attacks of pain so severe as to keep him awake at night and he experienced some difficulty in starting the act of micturition. He had had temporary analgesia over the thorax.

Mr. DAVID WALLACE showed the Middle Lobe of the Prostate removed by Suprapubic Cystotomy. The specimen was from a man, aged 68 years, who suffered from extreme hæmaturia and required the constant use of the catheter. The bladder was opened in order to rest it, but the prostate was found to have a well-marked pedunculated middle lobe very suitable for removal which was done. The recovery was perfect and within six hours of the operation the urine was free from blood. On the sixteenth day the patient passed urine per urethram and did not now require to use the catheter.

Dr. BYROM BRAMWELL exhibited a Tumour of the Right Frontal Lobe. The patient was a man, aged 23 years, who in 1897 showed the general symptoms of an intracranial tumour. Vision was entirely lost in the right eye; the knee-jerks on both sides were exaggerated. There were no localising symptoms and the memory and mental condition were good. He was trephined over the right motor area with relief to the headache, but a degree of hemiplegia ensued. A large hernia cerebri formed and soon grew to the size of a man's fist. He was discharged in July, 1897, and lived until August of this year. The hernia increased in size until it was as large as the head itself (21½ inches in circumference and five and a half inches deep). There was a constant drain of fluid from a small aperture. The great points of interest were the absence of localising symptoms and the large size of the tumour, which destroyed almost the whole of the frontal lobe, and the fewness of the symptoms.

The following gentlemen were elected as office-bearers for the ensuing session:—President: Dr. Alexander Gordon Miller. Vice-Presidents: Dr. James Dunsmure, Dr. Charles Underhill, and Dr. James Andrew. Councillors: Sir John Batty Tuke, Dr. McKenzie Johnston, Dr. Graham Brown, Mr. David Wallace, Dr. John W. Ballantyne, Dr. George Kerr, Dr. Kenneth Douglas, and Mr. H. J. Stiles. Treasurer: Dr. Harvey Littlejohn. Secretaries: Mr. I. M. Cotterill and Dr. Melville Dunlop. Editor of Transactions: Dr. William Craig.

A large number of new members were admitted to the society.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Nov. 8th, Dr. E. Wearne Clarke, the President, being in the chair.—Dr. A. J. Hall showed the following cases:—1. Dermatitis Herpetiformis in an elderly woman. The affection had lasted on and off for four years, during which the patient had had repeated attacks of polymorphous painful eruptions in almost all parts of the body. At present there was no eruption but intense pigmentation wherever the spots had been. 2. Eczema of the Hands and Face due to occupation—"occupation dermatitis." The patient, a young woman, was a "wiper of pocket-knife blades," in which avocation she used lime freely. Acute dermatitis attacked both hands and was followed by a similar affection of the face. Dr. Hall contended that there was no hard-and-fast line between eczema and so-called occupation dermatitis and that it was inaccurate to cease to designate as eczema an affection which would otherwise be classed as such directly an external irritant had been discovered. In this case the eruption on the face was not the direct result of the irritant but a reflex secondary outbreak in a distant part of the body. 3. Two cases of Lupus Erythematosus in elderly women. 4. Tertiary syphilide presenting unusual appearances, being probably modified by occurring in a seborrhœic patient.—Dr. W. T. Cocking showed (1) a case of Pseudo-hypertrophic Paralysis in a boy, aged eight years; and (2) a case of Charcot's Disease of the Right Knee in a woman, aged 49 years.—Mr. C. Atkin read notes of a case of Obstruction of the Bowels from Tuberculosis ending Fatally from Hæmorrhage. A woman, aged 37 years, was sent to the Royal Infirmary suffering from obstruction of the bowels. After copious enemata, &c., the bowels were well opened. The symptoms then pointed to hypostatic pneumonia though some abdominal tenderness persisted. The woman was enormously fat and enteric fever was excluded. After a fortnight's irregular temperature hæmatemesis occurred, followed by copious bleeding from the bowel. Post mortem, three or four large tuberculous ulcers were found, the alimentary canal from the duodenum downwards was full of blood, the peritoneum was studded with masses of tubercle beginning to caseate, and with miliary tubercle. No ulcer was found in the stomach, therefore the blood must have regurgitated through the pylorus.—Mr. Atkin also related notes of a case of Gastric Ulcer for which pyloroplasty had been tried. Though symptoms had persisted for five years no ulcer was discovered. The operation was chosen in preference to gastro-enterostomy as the pylorus was free from ulceration, though spasmodically stenosed. The girl gained considerably in weight after the operation. The menses were never irregular.—Mr. Atkin also showed a young married woman, aged 26 years, on whom he had performed Colotomy for Cancer of the Upper Third of the Rectum. There was a history of pelvic cellulitis on the left side six months before, and no other symptoms till those of acute obstruction of the bowels appeared. The growth was fixed and could not be brought up into the wound; there was secondary growth in the peritoneum.—Mr. Atkin also showed a Uterus which he had removed for cancer which was apparently localised to the interior of the organ.—Dr. J. W. Martin read the notes of a case of Acute Inversion of the Uterus in a primipara, aged 26 years. Six hours after a perfectly normal labour the patient became collapsed and profuse hæmorrhage set in. The inversion was reduced by taxis and the patient made a good recovery.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—The second meeting of the forty-fourth session of this society was held at the Royal Kent Dispensary, Greenwich, on Nov. 2nd, Dr. Septimus Sunderland, the President, occupying the chair.—Dr. James Donelan read a paper on Tracheal Hæmorrhage as a Sequel of Influenza. He drew attention to this affection as a source of error in the diagnosis of the cause of hæmoptysis. The evidences of the disease were a history of recent influenza, persistent cough with tickling in the throat, the occurrence of hæmoptysis in quantities varying from a few drops to four or five ounces in 24 hours, and an absence of fever except temporarily when the amount of blood lost was large or when the patient was much alarmed. The most important evidences were the laryngoscopic observation of congestion of the veins of the subglottic plexus and the occurrence of bleeding in this situation. These could only be observed with certainty in the period of calm which intervened between one attack and another and while a little oozing from the veins was still going on. The veins in most of the cases appeared to follow the direction of the inter-cartilaginous spaces, though sometimes they formed a close plexus crossing over from one space to another as far down as the fifth or sixth ring. Dr. Donelan had collected 12 cases occurring in hospital and private practice from 1895 to the present time. Nine of the patients had made good recoveries and had never had any trace of pulmonary trouble. Three developed pulmonary tuberculosis and two had died. The reason for the inclusion of these cases amongst the 12 was that there was no evidence of tuberculous infection when the hæmorrhage occurred and chiefly because it was observed to proceed from the subglottic venous plexus and not from any point lower down. The treatment was that commonly employed for pulmonary hæmorrhage—rest, opium, ice, hamamelis, and ergot or ergotin. Dr. Donelan referred to the absence of literature on the subject of tracheal hæmorrhage; the only article on the subject that he was acquainted with was that of Professor Massei, which appeared last year in the Italian Archives of Laryngology, entitled "Chronic Hæmorrhagic Tracheal Catarrh." The cases, however, did not occur in connexion with influenza, though in other respects the history was the same. Professor Massei had also expressed surprise that an affection which must be of somewhat frequent occurrence and which might easily lead to serious error in diagnosis should be practically unnoticed in medical literature.—Dr. F. Moon, Dr. F. T. Taylor, Dr. F. S. Tougood, Dr. J. H. Keay, and Dr. Weekes took part in the discussion which followed.—Dr. Donelan then gave a demonstration of a Few of the Commoner Positions adopted in the Operation for Naso-Pharyngeal Adenoids. He was strongly in favour of the position with the head extended over the end of the table, as it permitted a more deliberate and careful removal of the offending tissue and was free from most of the sources of danger and inconvenience which rendered the sitting or lateral positions objectionable.—A discussion followed. A vote of thanks to the lecturer concluded the proceedings.

MANCHESTER MEDICAL SOCIETY.—A meeting of this society was held on Nov. 7th, Dr. T. C. Railton, the President, being in the chair.—Dr. Thomas Harris, in opening a discussion on the Open-air Treatment of Tuberculosis, referred to the pathological and clinical evidence which they had of the arrest of pulmonary tuberculosis. He considered, however, that it was much better to speak of an arrest of the process rather than to describe it as a cure, as so frequently the disease became lighted up again. He described the various points in the open-air treatment. The putting on of a large amount of fat which so many of the patients did under the treatment was not to be considered in every case a satisfactory feature, as this putting on of fat was sometimes associated with a great amount of discomfort to the patient, and in a large number of cases, although fat was accumulated, the pulmonary disease was not stayed. Dr. Harris referred to the importance of providing sanatoria for advanced cases and thought that such would be especially advantageous to medical officers of health in preventing an extension of the disease. He also considered that investigations as to the cause and prevention of tuberculosis should occupy a foremost place in any crusade against the disease and that more was to be hoped from a study of preventive medicine than from the open-air treatment of tuberculosis in sanatoria or other places. Dr. Harris referred especially to the great danger which existed of sanatoria being conducted by unscrupulous persons, or of their becoming places of quackery, or places where payment of a dividend was the first consideration; and although there were many satisfactory and well-conducted sanatoria in this country he considered that medical men should be very careful as to what sanatorium they recommended to their patients.—The following gentlemen took part in the subsequent discussion: Professor S. Delépine, Dr. James Niven, Dr. H. R. Hutton, and Dr. E. S. Reynolds.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—A meeting of this society was held on Nov. 12th, Mr. H. E. Clark, the President, being in the chair.—Dr. James Kerr Love read a paper and demonstrated cases showing the Evolution of the Mastoid Operation.—Dr. Henry Rutherfurd showed: 1. The Parts from a Post-mortem Examination on a case in which Cholecystenterostomy had been performed six months previously for Intense Jaundice. There were a tumour of the head of the pancreas, gall-stones in the common duct, cholangitis, and abscess in the lungs. The bimucous fistula had closed and infection had probably travelled from the bowel up the common duct, the papilla of which had not been absolutely occluded. 2. Specimens illustrating Thrombosis and Embolism in Surgical Conditions. 3. Parts from two cases in which Innominate Aneurysm had been treated by Distal Ligature. 4. A Head, a Tumour, and a Spinal Cord from a case which had been operated on for Encephalocele.—Dr. R. S. Thomson showed samples of Intestinal Sand from Six Cases. The condition occurred in the subjects of mucous colitis and was perhaps not so uncommon as was supposed.—Dr. J. McGregor Robertson showed Ehrlich's Ocular and demonstrated its use in counting blood corpuscles.—Dr. J. S. McKendrick showed a series of Blood-film Preparations.

FOLKESTONE MEDICAL SOCIETY.—A meeting of this society was held on Nov. 2nd, Dr. Tyson, the President, being in the chair.—One new member was elected.—Mr. H. A. Powell read notes of a case of Congenital Heart Disease developed at the age of three years, accompanied by a gangrenous condition of the gums, and leading to necrosis of the jaw. Perchloride of mercury was applied and the child eventually recovered.—Mr. Powell also related the case of a vigorous and healthy man, aged 48 years, who was suddenly attacked by Diffuse Cellulitis of both buttocks and perineum due to a perforating ulcer of the rectum high up. On the second day of the acute symptoms free incisions were made and at a depth of four inches a mass of foul sloughing tissue was laid open. Antistreptococcic serum was also injected. Mr. T. Bryant and Dr. T. Eastes both saw the case in consultation. The patient made a good recovery. The sloughs came away on the fifth day, most of the wounds healed in three weeks, and he left his bed in another fortnight. Mr. Powell remarked on the probable origin of the case and its bacteriological aspect.—Dr. Eastes, Dr. P. G. Lewis, Dr. Livington, Dr. W. J. Tyson, Dr. Chubb, and Mr. W. F. Chambers also spoke.

CLINICAL SOCIETY OF MANCHESTER.—The opening meeting of this society for the current session was held on Oct. 16th. The following office-bearers for 1900-1901 were elected. President: Mr. F. A. Southam. Vice-presidents: Dr. T. A. Helme and Mr. J. E. Platt. Honorary Treasurer: Dr. C. H. Braddon. Honorary Librarian: Dr. J. W. Smith. Committee: Mr. W. G. Booth, Mr. G. H. Broadbent, Dr. A. Brown, Dr. J. Gray Clegg, Dr. J. Daniel, Dr. W. E. Fothergill, Dr. J. W. Hamill, Dr. James Holmes, Mr. C. F. H. Kitchen, Dr. M. P. Ledward, Dr. E. T. Milner, Dr. R. T. Parkinson, Dr. E. S. Reynolds, Mr. J. Rust, and Mr. F. H. Westmacott. Honorary Auditors: Dr. A. B. Fulton and Dr. E. J. Walker. Honorary Secretary: Mr. J. H. Ray.—The President opened a discussion on the Treatment of Appendicitis (Medical and Surgical) in its three following forms: (1) Simple or catarrhal (non-suppurative); (2) suppurative—(*a*) local abscesses, and (*b*) diffuse suppuration (purulent peritonitis); and (3) recurrent appendicitis.—An interesting discussion followed.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—An ordinary meeting of this society was held on Nov. 2nd, Dr. F. F. Schacht, the President, being in the chair.—The minutes of the last meeting were read and several new members were elected.—Mr. T. R. Atkinson

showed a card specimen of Tubal Pregnancy.—Mr. J. Jackson Clarke showed two patients illustrating some points in his paper on Some Phases of Rheumatoid Arthritis and Gout. This paper was, however, postponed by consent until the next meeting in order to give time for the reading of a paper by Mr. G. Lenthal Cheatle on Some Personal Experiences of the late Boer War. The paper was illustrated by a very fine collection of photographs which were shown on a screen by means of a lantern. Mr. Cheatle also showed a number of shells, bullets, &c., collected from the battlefield.—A hearty vote of thanks was accorded to Mr. Cheatle for his interesting paper and the meeting terminated.

Reviews and Notices of Books.

Life and Letters of Thomas Henry Huxley. By his Son, LEONARD HUXLEY. London: Macmillan and Co. Two vols. 1900. Pp. 1007. 13 engravings. Price 30*s.* nett.

TWO royal octavo volumes, including over one thousand pages between them, make a very large book, but not by any means too large a book to devote to the life of Huxley, crowded as it was with incident and varied by the most diverse public and private occupations. And when we had read the book our wonder was rather how so much had been included in the space. Mr. Leonard Huxley presents us with a complete account of his father's chief writings, doings, and sayings; but he has effected a saving of space by forbearing to attempt a critical digest of Professor Huxley's contributions to biological science. For such a digest other modes of publication are, no doubt, preferable. Incidentally, it need hardly be said, there is a great deal of comment upon biological discovery and philosophical view; but here, as elsewhere, the biographer wisely allows Professor Huxley to tell his own story, and that mainly by means of letters.

The feature of these two volumes is, in fact, the enormous amount of correspondence, dating from the very late "forties" and extending to three days before the death of Professor Huxley in 1895. These letters afford no evidence of priggish compilation for the purposes of subsequent publication; on the contrary, indeed, they sometimes verge upon the indiscreet, as letters written between friends are apt to do. But Mr. Leonard Huxley, by the judicious use of dots, dashes, and initial letters, has pruned away all that could possibly cause any annoyance, however slight, to persons living or to the relatives of those who are now dead. Professor Huxley was, as everybody knows, one of those who fearlessly expressed his opinions and that with decision and precision; it would be therefore impossible to water down any of his straightforward observations of men and things. "A hammer-handed man," observed an eminent divine to the present writer some years ago—a remark which conveyed, and was probably intended to convey, the impression that Professor Huxley was apt to hit the right nail, and that well upon the head.

The first volume begins with the inevitable searchings after family trees, the eagerness of the search being, however, tempered by an apt quotation from the professor himself, who remarked that "My own genealogical inquiries have taken me so far back that I confess the later stages do not interest me." At any rate, Huxley's father was a schoolmaster at that now suburban but then pastoral place called Ealing. The influences of early surroundings upon a man of genius are often the subject of inquiry and some philosophising, but there does not seem to be a great deal to extract from the early circumstances of Huxley's life. His father had "that glorious firmness which one's enemies call obstinacy"; his mother, he tells us, was a lady of extraordinary energy and emotions. Heredity, therefore, may have done and probably did do a fair amount for the *savant*: but Ealing, Coventry, and Rotherhithe do not seem impressive when we think of Agassiz among Swiss glaciers, and Buckland surrounded by the bones of ichthyosauri and plesiosauri at Lyme Regis. It is a curious example of the wise perversity of fate that Huxley was a biologist *malgré lui*; he wished to be an engineer or at least somebody in the mechanical line. Fate in the guise of Sir Joseph Fayrer walked down the steps of Charing Cross Hospital with young Huxley and directed him to apply for an appointment in the medical service of the Navy. It is interesting but futile to speculate as to whether, if the other event had occurred, we should have had among us a colossal scientific expert. Probably not, since on another page the well-known classification of those who are apt to banish the truth concludes with the superlative "expert witness." Professor Huxley's worst enemy could hardly accuse him of withholding the truth; indeed, he was apt to rub it in with salt and pepper.

The voyage of the *Rattlesnake*, to which ship Huxley was now appointed, was the means of his achieving greatness; it is hardly too much to say that the observations and reflections made upon that journey contained the best part of his subsequent work in pure science. On his return to England he found himself celebrated and was in the following year (1851) elected a Fellow of the Royal Society, the youngest Fellow on record, since the number of elections in each year had been reduced to 15. Huxley's opinion of the scientific men of his day is in many ways remarkable. It shows plainly that a certain hackneyed phrase about the tendency of man to err is by no means a platitude, and is a warning to all of us not to be too positive in our judgments as men, and perhaps also as examiners. The two leaders in zoological science are said to be Owen and Edward Forbes. "The rest of the naturalists stand far below these two in learning, originality, and grasp of mind. Goodsir of Edinburgh should, I suppose, come next, but he can't write intelligibly. Darwin might be anything if he had good health." This order would, we suppose, at the present day be almost exactly reversed. There is a good deal about the late Sir Richard Owen in these earlier pages; Huxley found him kind and courteous, and was gratified at being told by the great anatomist, whom he thanked for his assistance in the matter of the F.R.S., that the election was entirely due to his own merits. At a dinner at the Geological Club Huxley met Lyell, Murchison, De la Beche, and Owen. "Owen was," he wrote to his sister, "in my estimation great, from the fact of his smoking his cigar and singing his songs like a brick." Later, as the world knows well, there was much friction between the conservative followers of Cuvier and the young man who introduced into comparative anatomy a new order of things. The friction led to some smart sayings, and some of the sparks thus evolved are truly Huxleyan in their phrasing. "What a capital title it is they give him of the British Cuvier. He stands in exactly the same relation to the French as British brandy to cognac." In fairness to both great men we give a final appreciation by Huxley of this very nickname, contained in a review of Owen's scientific position. It runs thus: "It was not uncommon to hear our countryman called 'the British Cuvier,' and so far, in my opinion, the collocation was justified, high as the praise it implies."

Huxley is known to his generation for the magnificent clearness and sanity of his views and the large range of his outlook. He not only had sympathies that were boundlessly broad, but a gift of expression and exposition both with tongue and pen "If my opinion were to be taken," says Montaigne, "I should think the slow speaker would be more proper for the pulpit and the other for the bar." As we knew him Huxley was a deliberate and impressive speaker, and it is clear that he in the main occupied the pulpit, though

at times he was an advocate rather than a preacher. One of these latter occasions is dealt with by his son at some length. We refer to the celebrated meeting of the British Association at Oxford in 1860, the year after the publication of "The Origin of Species." It was held at that time by men of leading, if not of light, that Darwin's explanation of the cause of evolution was, as Professor Lankester has aptly put it elsewhere, a "capricious and anti-theological assertion that men are descended from monkeys." This was the limited view of persons of real culture and education. At the long west room at the Museum, now occupied by the library, the evolutionists, the anti-evolutionists, and their supporters held forth on Saturday, June 30th, in that year. The Bishop of Oxford "spoke for full half an hour with inimitable spirit, emptiness, and unfairness. ..... In a light scoffing tone, florid and fluent, he assured us there was nothing in the idea of evolution; rock pigeons were what rock pigeons had always been. Then turning to his antagonist with a smiling insolence he begged to know was it through his grandfather or his grandmother that he claimed his descent from a monkey?" A great deal of obloquy has been heaped upon the bishop for his part in the proceedings of that historic day; no doubt he appealed to the ignorant prejudices of his hearers who were naturally in those virtuous days of horse-hair furniture gratified by such an attitude. But need we crow so very much? It strikes us forcibly that many worthy persons would arise in their might at the present day, and protest in a precisely similar fashion, if doctrines, which they thought impious because they could not understand them, were promulgated by a man of science and then denounced by a bishop. The personality of the bishop appears to us to be purely rhetorical and not to show any of the "insolence" which has been seen in it, and Professor Huxley's reply was fully as vigorous as the speech which preceded it. What chiefly is hard of understanding in these milder times is why *tantæ animis cœlestibus iræ*. Huxley was fighting for freedom of opinion and deprecated authority. It is curious that in these latter days, when the positions of affairs are exactly reversed, the same old human love of authority should crop out in precisely the same way. Freedom of opinion then meant the right to hold more or less the Darwinian views on the origin of species. Nowadays it almost means the right to dissent from them. In presenting a Royal Society medal to Darwin the President of the Society of that day was carefully watched by Huxley, who suspected him of the intent to introduce some observation depreciatory of natural selection. The slighting remark was duly made, and that was, perhaps, the last flicker of the fierce flame that raged and attempted to destroy the natural explanations of the phenomena of Nature. Now the flame is precisely as vigorous, but it has been kindled by the then opposition, the school that in the "sixties" was fighting for freedom of thought. Quite recently a book purporting to overthrow some of the conclusions of Darwin and his adherents was published and was reviewed in savage terms because of its attempt to criticise the founder of modern zoological speculations. On the other hand, the most ridiculous assumptions, if they tend to support natural selection, are at once accepted and their authors more than occasionally lauded with surprising fulsomeness. We write as orthodox believers in the generally accepted teachings of evolution, but with some doubts upon details. And whatever may be the right way to clear up these doubts, which we share with many people, the wrong course is to stifle discussion. It is noteworthy that Professor Huxley did not commit himself to some of the more extravagant excrescences which have now appeared upon the very trunk of the Darwinian tree of knowledge.

From such a mass of information as that with which Mr. Leonard Huxley presents us in these volumes it is hard to pick out plums of general interest, not in the least from the lack of them but from sheer embarrassment of riches. Huxley knew intimately a large proportion of the illustrious people of his time and as he lived a long life the list is almost interminable. His strong objection to statesmen was natural in a man of his constitution and is made abundantly obvious again and again. In inviting Ministers to the dinner of the Royal Society Huxley, "thinking to please the Society, made a shot at some Ministers. The only two I know much about are Harcourt and Chamberlain, and the devil (in whom I now firmly believe) put it into my head to write to both. The enormous stupidity of which I had been guilty in asking Chamberlain under the circumstances ..... never entered my head until this afternoon." He did not think highly of our statesmen as philosophers. There are criticisms of Lord Salisbury's address to the British Association at Oxford and of Mr. Balfour's philosophical speculations. Of the latter his estimation sinks lower and lower the more he reads of the "Foundations of Belief." Gladstone, as everyone knows, was severely handled by him in the *Nineteenth Century*. There is an amusing tale told about Carlyle. Huxley confesses to the great influence which the sage had had upon him, particularly because he "had inspired him with his undying hatred of shams and humbugs of every kind." But it appears that the veneration was not by any means returned. "Years after [the publication of 'Man's Place in Nature']," writes Mr. Leonard Huxley, "near the end of his life, my father saw him walking slowly and alone down the opposite side of the street, and touched by his solitary appearance crossed over and spoke to him. The old man looked at him and merely remarking, 'You're Huxley, aren't you? The man that says we are all descended from monkeys,' went on his way." The great Napoleon's nephew, the Prince of Canino (why does Mr. L. Huxley give him the sporting title of "Casino"?), noted in his day as an ornithologist, attended the first meeting of the British Association which Huxley attended. He is described as being "singularly like the portraits of his uncle, and seems a very jolly, good-humoured old fellow. I believe, however, he is a bit of a rip. It was remarkable how proud the Quakers were of being noticed by him." The last sentence is somewhat cryptic to us. Of Darwin there is naturally much said. A large number of letters exchanged between these two great men are given in full by Mr. Leonard Huxley. "The cheeriest letter-writer I know" was Huxley's verdict upon the promulgator of Natural Selection. To be able to address that revered person as "My dear Darwin" seems to us to be the most dizzy height of eminence at which a man could arrive. Copious letters, mainly to Sir J. Hooker, Sir Michael Foster, and Professor Tyndall, deal with every possible variety of topic, from scientific questions of the day and of the past to views upon the conduct of Governor Eyre of Jamaica, the proposed Gresham University for London, and the sea-serpent. It was his interest in, and clear expression of views upon, such matters of general talk that really gained for Huxley his widely extended fame. To the general public he was a strong exponent of views generally at variance with those of respectable mediocrity; he was not pictured as the hard-working student sitting among bones and fossils and producing monograph after monograph of fundamental importance. Towards the end of his life a physical incapacity for bending over a dissecting-table unfortunately cut short the steady output of contributions to science which had marked all of his previous career. But when busy with all kinds of commissions and other duties he would jump into a cab and snatch a brief half-hour of zoological work in his laboratory at South Kensington. We mention this because Huxley the breezy critic of men, manners, and systems has rather dimmed the public recollection of Huxley the great biologist.

One side of Huxley's character is admirably developed by

his son in these volumes. Huxley was as delightful and whimsical in his private and family life as he was uncompromising in his public life. The following letter was written to a daughter who had requested an autograph for a friend:—

The Epistle of Thomas to the Woman of the House of Harold.

1. I said it was an autograph book; and so it was.
2. And naughty words came to the root of my tongue.
3. And the recording angel dipped his pen in the ink and squared his elbows to write.
4. But I spied the hand of the lovely and accomplished but vagabond daughter
5. And I smole; and spoke not; nor uttered the naughty words.
6. So the recording angel was sold;
7. And was about to suck his pen.
8. But I said, Nay! give it to me.
9. And I took the pen and wrote on the book of the autographs letters pleasant to the eye and easy to read.
10. Such as my printers know not; nor the postman; nor the correspondent who riseth in his wrath and curseth over my epistle ordinary.

It will be consolatory to all our readers who have ever failed to obtain an appointment which they sought to learn that Huxley was for long most unfortunate in his attempts to secure a professorship. Three places refused him—viz., Cork, Aberdeen, and Toronto. The professors of that day in these universities cannot be congratulated upon their insight; however, after a lapse of 50 years or so it is somewhat of an anachronism to be angry with the stupidity of one's forerunners.

Mr. Leonard Huxley concludes these two fascinating volumes with a list of his father's "Essays, books, and scientific memoirs," which fills no less than 16 pages, and with an excellent index.

The Theory and Practice of Hygiene (Notter and Firth). By J. LANE NOTTER, M.A., M.D. Dub., Professor of Hygiene in the Army Medical School, Netley, Colonel, Royal Army Medical Corps, &c.; and W. H. HORROCKS, M.B., B.Sc. Lond., Assistant Professor of Hygiene in the Army Medical School, Netley, Major, Royal Army Medical Corps. London: J. & A. Churchill. 1900. Pp. 1085. Price 25*s*.

WE are glad to welcome a second edition of this work and to see that although it has been considered desirable to re-write many of the former chapters and to make several alterations it has not been found necessary much to increase the size of the volume. The book is still used as a manual and is, indeed, the standard manual in hygiene both in this country and in America; but if its size be further increased it will pass from the manual class into a different category—a change which many would regret. The present volume contains but 51 more pages than the first edition, yet space has been found for 39 pages devoted to the bacteriological examination of water, a subject which during the last few years has assumed a position of great importance, equalling, if not surpassing, that of the chemical analysis. For this portion of the work Colonel Notter is indebted to Major Horrocks, the assistant professor of hygiene in the Army Medical School. Major Horrocks's special section deals with his subject systematically and, considering the space, very lucidly; he treats of the "collection of water for bacteriological examination," of "quantitative bacteriological analysis" (which he points out is of less importance than the qualitative), of "the preparation of water plates," of "qualitative bacteriological examination," and of the classes of micro-organisms. He then devotes some pages to the experimental researches on the duration of life of the bacillus typhosus in water and sewage and to the methods which have been suggested for the demonstration of the bacillus typhosus in water and to those proposed for the isolation of the cholera spirillum from water. There is a succinct summary of the procedure recommended for the bacteriological examination of water and a page on the methods of testing water filters will be found very useful. Major Horrocks's work shows very considerable thought and care and he is to be congratulated on having contributed much valuable independent information to this new edition. Miss Triscott is also to be highly commended for the pains she has taken in the preparation of the five new plates illustrating this section of the work.

During the last few years many aspects of hygiene have undergone rapid changes and the law of progress has shown itself in almost every part of the science. The parts of the volume now under review which show the most considerable alterations from the subject matter of the first edition are those relating to water-supplies, sewage disposal, immunity, disinfection, and infective diseases.

The chapter on Water occupies 142 pages, 22 more than in the first edition; in it all that is valuable in chemical analysis is accurately set forth, so that the careful student can with its aid carry out the various processes without difficulty. The portion of the work which treats of Air, Ventilation, and Heating is practically the same as in the former issue and is of the highest value.

In the fourth chapter, on Food, there is a useful section under the heading Shell-fish and Infection, in which Dr. Bulstrode and Dr. Klein's report to the Local Government Board upon oyster culture in relation to disease is epitomised and the late Sir Richard Thorne's summary is given in five short paragraphs. The characteristics of the outbreaks of disease transmitted by milk, as set forth by Mr. W. H. Power, are brought prominently forward and the question of the preservation of milk receives considerable attention.

In the section on Habitations much useful and practical information on the important question of Hot-Water-supplies is introduced.

Chapter X., on the Disposal of Sewage and Refuse, has been considerably amplified. Here, under the Purification of Sewage by Biological Methods, the most modern processes are described, such as Dibdin's or the Sutton System, the Septic Tank System, the Thermal Aerobic Sewage Filter of Whittaker and Bryant, the System of Open Septic Tank with Double Filtration in Bacterial Filter Beds, Ducat's Aerated Bacterial Self-acting Filter, and the Purification of Sewage by Intermittent Bacterial Treatment of Coke Beds as studied by Clowes and Houston for the London County Council, and to this portion of the manual there are other important additions.

In the chapter on the Infective Diseases there are some excellent new pages on immunity and protection; here artificial immunity, passive immunity, the origin and mode of action of antitoxins, anti-microbic serum and natural immunity are in turn considered, and a new section is devoted to the etiology and prevention of beri-beri. New paragraphs have also been introduced under the heading of Enteric Fever, describing preventive inoculation, as inaugurated by Professor A. E. Wright and Major D. Semple, R.A.M.C., of Netley, with a description of how the vaccine is at present prepared. It is also stated that the results obtained by Professor Wright's inoculations in India are distinctly encouraging. The Malarial Parasites and the prevention of malarial fevers are dealt with in some interesting pages, while the marked diminution in the fatality of scarlet fever at all age-periods is emphasised, and Dr. Newsholme's table is quoted. This chapter on Infective Diseases occupies 100 pages and is by no means the least interesting and valuable.

Much of the section on Disinfection has been re-written and here there are several new woodcuts to aid the student; the value of formaldehyde as a gaseous disinfectant is dwelt on, but it is pointed out that when Schering's method is

employed as a rule too few tablets are used to insure thorough disinfection.

In the chapter on Vital Statistics there are some good tables gathered from Dr. Tatham's figures for the years 1890–92, and observations on the question of occupation in relation to mortality. The paragraphs in which the relation of the density of the population to mortality is discussed are also amplified.

Much of the chapter on Military Hygiene (Chapter XIX.) has also been re-written so as to bring it up to date and to make it inclusive of the most recent regulations. Under the heading of War Rations the daily ration for each officer and man in our recent expeditions is set forth. The chart given at page 1028 shows the difference in the admissions for primary venereal sores amongst British troops before, during, and after the Contagious Diseases Acts were in force at 14 protected and 14 unprotected stations in the United Kingdom.

Appendices XI. and XII. are new—the former deals with the Sterilisation of Apparatus and the Preparation of Culture Media and the latter with the Preparation of Ammonia-free Distilled Water. A new table (after Vieth) is also given for correcting the specific gravity of milk according to temperature.

The new parts of this work appear to us to be excellent and the whole book has been carefully edited. Many mistakes in the first edition have been corrected, and although the present edition cannot be said to be free from errors, most of these are evidently due to the printer and are so palpable that they will not long trouble the student. The letterpress is illustrated by many new explanatory woodcuts which are at once both simple and practical. The bibliography and references throughout the book are excellent, the authors having followed the useful plan of having a separate bibliography at the termination of each subject. We can strongly recommend the volume which will doubtless have as large a circulation as its excellence deserves. The book is a very worthy successor to the well-known work of the late Professor E. A. Parkes, which was subsequently enlarged and edited by the late Professor de Chaumont.

We are glad to see that Colonel Notter mentions Major R. H. Firth's name in the preface, as it appears to us that much of the information in the present volume is as that officer left it when he co-edited the first issue in 1896, and that a tribute is also paid to Major Horrocks for his help and assistance in bringing out the new edition. The omission of the names of Colonel Notter's colleagues from the cover of the work must of course be an oversight on the part of the publishers, but we would suggest that in future editions, which are sure to become necessary, the names of all the authors should be duly set forth.

Medical Electricity. By H. LEWIS JONES, M.A., M.D. Cantab, F.R.C.P. Lond. Third edition. London: H. K. Lewis. 1900. Pp. 532. Crown 8vo. Price 10*s.* 6*d.*

To write a practical text-book on medical electricity which would reach a second edition, at a time when quacks had made the subject distasteful to medical men and when it was regarded by the intelligent public with suspicion, was no mean accomplishment. In the first edition the author found it necessary to allot a considerable amount of space to technical detail in order to place the subject on a scientific basis, which, however, somewhat marred the book, as it rendered it difficult reading to those who were not experts in electricity; but the knowledge of the subject becoming more popular by the almost universal establishment of public electric-light supplies, in the second edition it was found possible to omit much unnecessary detail and to give more space to treatment. In the present (third) edition the material has so much increased and the progress made has been so considerable that in order to keep the book within the reasonable compass expected in a text-book the author has found it convenient further to curtail the technical portions, to introduce two new chapters, and to add many illustrations, rendering it more complete and up-to-date. The book is so well known that it is only necessary to notice the additional matter introduced. A new chapter on Dynamo Electricity is clearly and succinctly written, and the use which may be made of the street mains are grouped together under the following heads—(1) the illumination of small lamps for special purposes; (2) the heating of a galvano-cautery; (3) the driving of small motors; (4) the operating of small and large induction coils; (5) the charging of accumulators; and (6) the treatment of patients; and in an appendix a list is given of the towns having a public supply, together with details as to the current furnished. The chapter on Statical Electricity has been added to and revised. The Holtz and Wimshurst machines are described at sufficient length, the author being evidently much impressed with the work of Dr. Monell of Brooklyn, for he affirms that the effects which large statical machines can produce are almost startling to those who have been familiar only with the phenomena produced by small machines and that the therapeutic results of their use are obtained so promptly and so easily that it is a pleasure to use them.

An additional chapter is given on the Roentgen Rays which is intended as an outline of the methods and principles concerned, and as it is condensed into some 20 odd pages this must be admitted to be the case, but we wish that the author had found it practicable to allot more space to a subject which has become of such universal application. The chapter is illustrated by a coil and a bi-anodal focus tube. We were disappointed in finding no mention of the application of electric light in the treatment of disease. The book is to be thoroughly recommended; the details suffice for the requirements of a medical man who has not the time to study the subject of electricity exhaustively, and as in the former editions the book raises the position of medical electricity to its proper level and helps to remove the reproach that still clings to the profession for having allowed others almost to monopolise the practice. It may be considered as an admirable text-book for students and a handy book of reference for practitioners.

LIBRARY TABLE.

Nordrach at Home. By J. J. S. LUCAS, B.A., M.R.C.S. Eng., L.R.C.P. Lond. Bristol: J. W. Arrowsmith. 1900. Pp. 60. Price 1*s.*—Mr. Lucas has made an attempt in his "Nordrach at Home" to supply the necessary information for carrying out the "open-air treatment" of pulmonary tuberculosis in the house of the patient without removing him to a special sanatorium or to some expensive health resort. The plan which he proposes is simple, practical, and inexpensive. There is nothing original in his suggestions, which are based on the ordinary principles of hygiene, but they are collated in a form which is likely to prove of use. Probably most medical men at the present day are already acquainted with the details of the treatment as far as they are suitable for domestic application. They may, however, be saved trouble if they refer their patients to this little work.

The Feeding of Infants. By W. LANGFORD SYMES, F.R.C.P. Irel. Dublin: Fannin and Co., Limited. 1899. Pp. 40. Price 1*s.*—This small work is divided into two sections, one dealing with the feeding of infants under one year old, and the other with that of children over that age. Much useful advice is contained in these few pages. The author insists on the use of modified milk when breast-feeding is impossible and condemns the use of patent or

proprietary foods; but what he means by the following sentence, which appears on page 10, is most difficult to understand: "Starchy or '*carbohydrate food*' is most injurious to infants under one year of age; they have no means of digesting it." Considering that in the sentence which precedes it he advocates the use of sugar, apparently Mr. Symes does not include sugar among the carbohydrates. Many authorities, including Jacobi, do not subscribe to the universal condemnation of farinaceous foods, even for very young infants. All are, however, agreed that they should only be employed in very small quantities.

Design in Nature's Story. By WALTER KIDD, M D. Lond., F.Z.S. London: James Nisbet and Co. 1900. Pp. 165. Price 3*s.* 6*d.*—This booklet will act as a reminder that there are arguments against, as well as for, the conception of natural selection as the main factor in organic evolution. And to the medical mind such a reminder is particularly valuable, for as a profession we are inclined to pronounced conservatism, and having once accepted a theory we are not easily shaken in our allegiance. Although the acceptance of the proposition that there is a design in nature does not necessarily exclude the doctrine of evolution it is clear that Dr. Kidd has a very limited faith in the ordinary forces generally admitted to be the chief factors in evolution—natural selection, for instance. Broadly speaking, his arguments in favour of the "unseen and guiding hand" turn on two pivots—(1) that organic nature is so marvellously and wonderfully made that the end must have been foreseen before the foundations were laid; (2) everything is reciprocally adapted in animate and inanimate nature and has been from the first beginning of life. In a retrospective examination of any completed chain of events in which the links are reciprocally dependent it is as legitimate to assume that the chain of events has followed on predestined lines as to assume that the ultimate result might have been different if one of the component links had given way or owing to accident (variation) had been differently constituted. In the marvellous adaptation to the requirements of the human body of such structures as the nasal and thoracic ducts Dr. Kidd finds evidence of design, and he regards the vermiform appendix not as a vestigial relict dangerous to man, but as a "little sentinel" which stands between the small and large intestine and acts as a "death-trap" for the microbe. Dr. Kidd is right in believing that he is raising a "thorny question" in taking this heretical view of the functions of this apparently ill-adapted organ. The author deserves credit for the bold exposition of his views although it is improbable that they will meet with any general acceptance.

Sanitation and Health. By Brigade-General R. C. HART, V.C., C.B., &c. Revised by Brigade-Surgeon-Lieutenant-Colonel T. H. HENDLEY, V.C., C.I.E., M.R.C.S. Eng., L.R.C.P. Lond., &c. Fourth edition. London: William Clowes and Sons. 1897. Pp 56. Price 1*s.* 6*d.*—This small pamphlet is a revised lecture delivered by Brigade-General Hart to the troops stationed in Rohilkland, a district of India. It offers sound advice on general hygienic and sanitary matters, and is written down to the level of understanding presumably possessed by "Tommy Atkins." The lecture is practically such as would be appropriate for a St. John Ambulance class, with the addition of the local and climatic conditions of India which are likely to influence the health of the soldier being taken into consideration. The fact that the pamphlet has reached a fourth edition and is authorised by the War Office for use in army schools is sufficient evidence of the practical nature of the advice therein contained.

Twice Captured: A Record of Adventure during the Boer War. By the Earl of ROSSLYN. Edinburgh and London: William Blackwood and Sons. 1900. Price 10*s.* 6*d.*—The author tells us that he acted as roving correspondent to the *Daily Mail* and the *Sphere* during the Boer War, and in this volume, which is well illustrated, he narrates his personal adventures and experiences in South Africa. Lord Rosslyn saw a good deal and has consequently a good deal to write about, some of which is interesting and well worth reading, but taken as a whole the book is somewhat discursive and contains, in its earlier pages more especially, too many details regarding occurrences which are more or less common to all travellers. In addition to his account of his captivities Lord Rosslyn adversely criticises the system of "censorship" pursued by the military authorities in regard to the treatment of press correspondents, and has much to say of the general conduct of the war. With the best intentions in the world an author, writing in a free and discursive way of what he heard and saw during a campaign, cannot be always sure of his data, and the conditions in which the writer was placed were not, we fancy, those most favourable for forming any full and impartial judgment in regard to current events and topics. We learn that the book has been withdrawn from circulation.

How We Escaped from Pretoria. By Captain AYLMER HALDANE, D.S.O., 2nd Battalion Gordon Highlanders. Edinburgh and London: William Blackwood and Sons. 1900. Price 1*s.*—We had the gratification of reading this spirited and interesting account of "How We Escaped from Pretoria" on its original appearance in *Blackwood's Magazine.* A renewal of our acquaintance with it now that it is published in separate form has tended to revive and to strengthen the very favourable impression which we derived from its first perusal. It is a graphic and well-told story narrated in a very natural, and therefore pleasant and interesting, way and carrying the stamp of truth with it throughout. Its author tells us that he has been enabled to make some additions to his original account owing to the fact that the near approach of a successful termination to the war enabled him to give a full record of the adventures of himself and his companions and of the material aid which they met with from their own countrymen. This he could not do before without the risk of compromising those who had helped him.

JOURNALS.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, F.R.S., ADAM SEDGWICK, F.R.S., W. F. R. WELDON, F.R.S., and SYDNEY J. HICKSON, F.R.S. Vol. xliv., Part 1. London: J. & A. Churchill. 1900. Price 10*s.*—This part contains: 1. A long and interesting article by Walter Heape, M.A. Cantab., of Trinity College, on the Sexual Season of Mammals and the Relation of the Procestrum to Menstruation. Mr. Heape points out that in the male the sexual season, called the "rut," from the Latin "rugire," to bellow, and therefore properly limited to such animals as stags and boars and to the male sex only, presents varieties according to whether it is confined to a single period of the year or to certain seasons and should not be applied to those animals which are capable of inseminating the female at all seasons of the year. In the case of the female the activity of her generative organs may be observed when there is no access of the male or when coition does not result in conception and when reproduction does take place. In both cases the changes are complex. He distinguishes between the procestrum or the period antecedent to heat, the œstrus or period of heat, and the ancestrum or period of rest, intercalating between the last two the metœstrum, which is the period when, conception not having taken place, the excitement of the generative organs gradually subsides. The females of some animals are monœstrous or have only one season of heat—as the bitch or bear—while other are polyœstrous or have many seasons in the course of

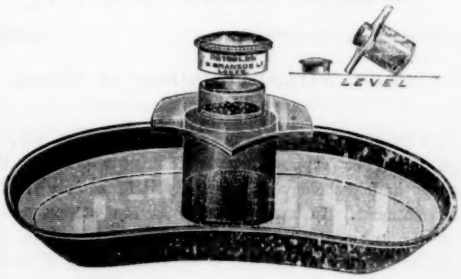
the year, as the mare. Mr. Heape does not consider that ovulation and the œstrus cycle are necessarily coincident. He suggests that there is present in the blood from time to time what may be called an œstrus toxin which stimulates the activity of the sexual organs, and brings about the actual production of those generative elements which nutrition has enabled the animal to elaborate. 2. Mr. Richard Evans, M.A., B.Sc., gives a description of Ephydatia Clembingia, a fresh-water sponge. 3. Mr. R. C. Punnett, B.A., describes a collection of Nemerteans from Singapore, with four plates. 4. Mr. Arthur Willey describes the Protostigmata of Molgula Manhattensis, a New England species of ascidian. This paper is accompanied by a plate.

The Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, F.R.S., D. J. CUNNINGHAM, F.R.S., G. S. HUNTINGTON, M.D., A. MACALISTER, F.R.S., and J. G. M'KENDRICK, F.R.S. October, 1900. Vol. xxxv., Part 1. With Plates and Figures in the Text. London: Charles Griffin and Co., Limited. Price 6*s.*—The contents of the present part are: 1. Atresia of the Aortic Orifice due to Anomalous Development of the Auricular Septum, by Joseph A. Blake, M.D. 2. Absence of the Inferior Cava below the Diaphragm, by Thomas Dwight, M.D., with a plate. 3. The Sternum: its Early Development and Ossification in Man and Mammals, by Professor A. M. Paterson of Liverpool, with two plates. 4. Some Points in the Anatomy of the Digestive System, by A. Birmingham, M.D. The author of this paper strongly advocates the use of formalin injections for hardening the tissues and organs of the body and in retaining them in their position. The parts treated of are the salivary glands, the tongue, the palate, the pharynx, the œsophagus, the stomach and intestines, the levator ani, the liver, and the pancreas and the peritoneum. 5. The Frequency of an Opening between the Right and Left Auricles at the Seat of the Foramen Ovale, by Professor E. Fawcett and Dr. J. V. Blachford. In 306 cases they found the frequency to be 31·37 per cent. 6. Note on the Configuration of the Heart in Man and some other Mammalian Groups, by Dr. Charles J. Patten, with three plates. 7. The True Cæcal Apex of the Vermiform Appendix; its Minute and Comparative Anatomy, by Dr. Richard J. A. Berry, with five plates. 8. Of the Movement of the Lower End of the Radius in Pronation and Supination and on the Interosseous Membrane, by Dr. James F. Gemmill. 9. The Anatomy of the Ingestive Tract of the Salmon, by Dr. G. Lovell Gulland. 10. Archæologica Anatomica: The Parotid, by "A.M." 11. Anatomical Notes and Queries. 12. Proceedings of the Anatomical Society of Great Britain and Ireland.

New Inventions.

AN ASEPTIC DREDGER.

IT has struck me that the whole procedure of an aseptic operation or an aseptic dressing of a wound breaks down when the surgeon who wishes to dust on some antiseptic powder takes hold of a septic bottle or tin for that purpose. After the powder has been dusted on the surgeon has, with surgically unclean hands, perhaps to unravel a strip of gauze for packing or to cut a square of gauze to lay over the wound. With this idea in view I have devised a dredger made of celluloid which is light, transparent, and can easily be rendered aseptic. The dredger is so made as to stand with safety in a basin of antiseptic lotion from which it can be picked out by the surgeon or dresser. The bottom of the dredger is weighted so as to keep it in a condition of stable equilibrium if standing in antiseptic lotion of shallow depth, also to keep in position its centre of buoyancy if floated in a deeper basin of lotion. The projecting rim is to prevent water from the surgeon's wet hand, or from the basin, damping the powder inside. The rim also keeps the head of the bottle above water should it get upset, and so again keeps the interior dry. Over the perforated disc there is a closely-fitting cap which should always be *in situ* when the dredger is not in use. When the cap is on the whole dredger can be



immersed in antiseptic lotion before the surgeon requires to use it. I should suggest that the interior of the bottle be sterilised by a tablet of formalin before introducing the powder. The instrument has been made for me by Messrs. Reynolds and Branson of Leeds.

BERTRAM C. STEVENS, B.S. Durh., M.R.C.S. Eng.

Leeds.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council was held on Nov. 8th, Sir WILLIAM MACCORMAC, Bart., K.C.V.O., the President, being in the chair.

The SECRETARY reported the death on Oct. 27th of Mr. William Anderson, Member of the Court of Examiners. It was then resolved:

That the Council hereby express their deep regret at the death of Mr. William Anderson and their sincere sympathy with his widow and family in their bereavement. That the Council do also record their appreciation of Mr. Anderson's services to the College while a Member of the Court of Examiners and as Hunterian Professor, and deplore the loss to the College of a Fellow distinguished for his ability as a surgeon and for his refined and cultured attainments.

The PRESIDENT stated that the vacancy on the Court of Examiners and the vacancy on the Board of Examiners in Dental Surgery, occasioned by the death of Mr. Anderson, would be filled up at the next meeting of the Council in December.

The Council elected Mr. W. J. Walsham a member of the Board of Examiners in Dental Surgery (Court of Examiners section).

A report was received from the Finance Committee on the administration of the Sir Gilbert Blane naval medals. The report stated *inter alia* that since the foundation of the fund in 1830 70 medals had been awarded to medical officers of the navy and that a balance of nine guineas remains. New dies for the medal have recently been made at the Royal Mint.

The Council directed that the attention of the General Medical Council should be called to the advertisements of a man at Bury St. Edmunds and his illegal assumption of the description "R.D.S., R.C.S. Eng.," and they were requested to take the matter into consideration with a view to action being taken under Section 13 of the Dentists Act, 1878.

The PRESIDENT stated that the Bradshaw Lecture would be delivered by Mr. John Langton on Wednesday, Dec. 12th, at 5 P.M., and that the subject of the lecture would be the Association of Inguinal Hernia with the Descent of the Testis.

The Council resolved that the lecture hour for the course of lectures in February and March, 1901, should be 5 P.M.

A SUM of £2350 has been promised towards the Mary Kingsley Memorial Hospital which is being promoted by the Liverpool School of Tropical Medicine. The principal subscribers are local shipowners and merchants whose business connexions with West Africa have made them acquainted with the work of the deceased lady.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 17, 1900.

THE problems of disease are often much more complex than might be supposed, and if this is true of the etiology and pathology of a malady it is equally true of the treatment. In many diseases we are unable to say that our "remedies" have any influence at all on the course of the disease, and this is especially likely to be the case in those affections in which a large proportion of the cases recover even when no treatment is adopted. This is peculiarly true of tetanus. From the earliest times it has been recognised that a certain number of cases would recover and a certain number would die under any form of treatment that might be adopted, and though of late years several new therapeutic methods have been introduced it can hardly be said that we have advanced very far on the road to the successful treatment of this disease. For an accurate estimation of the therapeutic value of any remedy it is essential that the ordinary course of the disease for which it is administered should be well known, otherwise there is great risk of attributing to the treatment the improvement resulting from natural causes.

It is only within recent years that we have had a clear idea as to the etiology of tetanus. Tetanus was until quite lately attributed to those agencies which are invoked when knowledge is deficient. Cold nights after hot days, exposure, privation, were credited with the induction of the disease, yet now we know that though these agencies may predispose to tetanus by a lowering of the vital powers, they can have no real action in causing the disease. It was, however, seen that in nearly all of the cases a definite wound was present, and when the germ theory of many diseases was accepted the thoughts of pathologists naturally inclined towards the idea that tetanus also was due to a microbe. In 1885 NICOLAIER identified the bacillus tetani, and ROSENBACH'S researches in the following year confirmed the theory that it was the cause of tetanus. The next step in advance was the recognition of the fact that the bacillus does not in the vast majority of cases invade the blood stream, but is confined to the vicinity of the spot where it was inoculated. The deductions from this were that only the toxins produced by the bacillus were absorbed, and that these affected the motor centres of the brain and spinal cord. The cleansing or the removal of the local affected area might therefore be expected to lead to a cessation of the manufacture of toxin, and therefore to recovery. But there are two facts which diminish greatly the benefit which might be expected to result from the local treatment; in the first place there is a great risk of re-inoculation of the tissues which have been laid bare in excision or amputation, and in the second place the local removal of the focus of bacilli cannot affect the toxin which has already passed into the circulation. Yet in spite of these defects the local treatment remains one of the most valuable and important factors in the treatment of tetanus. Treatment of the symptoms has been employed for many years, but it cannot be said that much is to be expected from it. Yet sedatives are still rightly considered of value. The internal administration of carbolic acid has been credited with many successes and is well deserving of further trial, though we are ignorant of its mode of action. In 1891 the employment of an anti-tetanic serum was first suggested. It was proved that in a test-tube the serum of an immunised animal has a perfect power of neutralising the toxin from a virulent culture of the bacillus. A similar result was obtained when the toxin and the antitoxin were injected, one immediately after the other, into an animal and the value of serum seemed to be definitely proved. But when the serum was employed in the case of patients suffering from tetanus recovery by no means necessarily followed. In many cases no improvement occurred, though some of the patients recovered; and it was found that no definite reduction in the mortality was effected. Then it was discovered that the antitoxin could neutralise only so much of the toxin as was circulating in the blood stream, and that the toxin had the power of entering into a firm combination with the motor cells of the nerve centres, and that this combination was quite unaffected by the antitoxin. In 1898 it was suggested that as the toxin affected the cells of the brain and the spinal cord it was advisable to inject the serum into the brain or into the subdural space, and this method of administration has been adopted in a number of cases. In some cases recovery has followed. In others death has occurred. The fatal result does not seem to have been in any wise due to the antitoxin, as a rule but in one case the patient recovered from the tetanus and died eight weeks later from cerebral abscess, undoubtedly the effect of the injection. From our present knowledge we may say that the subdural method of administration seems to offer the fittest opportunity for the remedial action of the antitoxin to be manifested.

It seems in the present state of our knowledge that the best hope of the successful treatment of tetanus depends on an early and thorough cleansing of the wound with, if necessary, excision or even amputation, and on the early administration of the antitoxin before the motor cells are irremediably implicated. The very fact that spasms have occurred shows that the toxin has already affected the nervous centres, and the loss of a few hours may suffice to render the antitoxin useless. It may be that in the future a more powerful antitoxin may be prepared which will be able to destroy the toxin even in the central nervous system, but for the present a prompt recognition of the disease and early treatment are conditions essential to success.

ALL fatalities under anæsthesia are terrible, but there is no doubt that those which take place on occasions when the operation is in itself trifling and not *per se* dangerous to life are peculiarly sad. In this category fall deaths which occur during dental operations. It would not be fair to say that

these deaths are preventable, but it may very well be urged that in many instances risks are inflicted upon patients which are out of proportion to the gravity of the operation. In the early days of anæsthesia chloroform was commonly given in dental cases, and SNOW, whose experience was extensive for his day, regarded the practice as safe and justifiable. He even omitted the precautions concerning special preparation, and allowed his patients the sitting posture during the administration and tooth extraction. SNOW never met with a death under chloroform among his dental cases. It would, however, be very misleading were we to argue from this that chloroform is a fitting anæsthetic for such patients and that we are justified in allowing the upright position for persons who are about to inhale the most potent of narcotic vapours. What SNOW could do with impunity the great majority of chloroformists may not do. In the days of SNOW chloroform was not in the hands of every medical man and its use was not of every-day occurrence; to-day there is a danger lest familiarity should breed contempt of dangers. It seems, therefore, well within our province to urge upon the profession the wisdom of adopting anæsthetics less dangerous to life in all cases in which they are available and effectual.

The preference for an anæsthetic which induces a very profound and persisting narcosis in operations upon oral, pharyngeal, laryngeal, and nasal structures is readily explicable. Undoubtedly, chloroform is the most easy of all anæsthetics to manipulate in such cases, and in the facility with which a death-like sleep can be obtained by its use lies its greatest peril. As SNOW employed this agent it was comparatively safe, for after his wonderfully exact experiments he was able to use it for light and transient anæsthesia, always stopping short of the depth of narcosis which is now so often striven for and obtained. In that way lay safety in this danger. Again, while practically everyone can "push" chloroform and obtain a profound anæsthesia few are able successfully to limit its action, and perhaps fewer still to obtain satisfactory results while employing the anæsthetics of less potency. It was the failure to obtain uniformly satisfactory results with nitrous oxide gas which led practitioners, especially in Germany, to employ pental and bromethyl. These members of the alcohol series of narcotics obtained a vogue because they possessed the paralysing powers of chloroform without, it was assumed, the lethal perils of that body. However, as WOOD and many others have demonstrated, they are and must be, when their chemical composition and physiological action are considered, as potent as chloroform is potent and safe only in so far as that potency is kept within the range of light anæsthesia. When the fourth degree of narcosis is reached the medullary centres must gradually pass under the influence of the drug employed, and its safety depends then upon whether or not its power to destroy nerve protoplasm is great or small. That of chloroform is great, as is that of bromethyl and of pental, while that of ether is slight, probably as slight as alcohol. That of nitrous oxide, however, is least of all. The use, then, of chloroform or its congeners for anæsthesia in dental operations, if permissible at all, should be restricted to the most narrow limits.

In regard to a case recently reported the following facts are sent to us by the courtesy of Dr. JAMES SAVEGE. The patient, a boy, aged nine years, went to a dentist in Hull to have 10 or 12 teeth removed. The dentist attempted to give nitrous oxide gas, but the boy was "unmanageable" and anæsthesia was not obtained. It was decided then to obtain a medical man's services and after an interval of half an hour chloroform was administered from a wire mask over which lint was stretched. The boy was placed in the semi-recumbent posture in a dental chair tilted back. He struggled slightly. The operation lasted from 15 to 20 minutes, chloroform being given four times at intervals during this time. Six and a half drachms in all were used, being dropped over the lint. The operation was performed after each chloroformisation when the ocular reflex had disappeared. Within a minute of the completion of the operation the boy's face grew ashy in colour and the pulse and heart's impulse were lost. Respiration, which had been steady and regular, failed after growing arrhythmic. The pupils were widely dilated. All measures to resuscitate the boy failed. No note is given as to whether inversion was tried. This clearly was the "first aid" indicated. The reason for using chloroform in this case was that the nitrous oxide had failed, and if we are justified in the assumption that the dentist attempted to administer it and to operate, being single-handed, it is not surprising that his efforts failed. It used to be a common but mistaken idea that nitrous oxide was the special anæsthetic of the dentist and that he could administer it single-handed and operate without detriment to his patient. Possibly a few men of exceptional quickness succeeded, but when it is remembered that the duration of anæsthesia is considerably less than one minute it is obvious that no man can hope to adopt the double rôle of anæsthetist and operator and to do justice to his own powers in either capacity. The reported failure—an actual failure of nitrous oxide never occurs—was no valid reason for the use of chloroform. It may be urged that extensive operations on teeth cannot be performed under nitrous oxide. This is not true. Repeated administrations of that gas, inadvisable as they are when the patient can attend repeatedly, can, in suitable cases, enable a mouth to be cleared at one sitting, especially if ether is employed as an adjuvant. We say in suitable cases, because we hold very strongly that, as the leading members of the dental profession now teach, wholesale extractions are to be avoided, especially when undertaken at one sitting. It must occur in the case of persons of small means that repeated fees are beyond their powers and it then becomes necessary to do the operation at one time. In these cases nitrous oxide can be given intermittently or continuously through a mouth-tube or nasal injector, or the simpler and cheaper method can be adopted of using gas first and producing full surgical anæsthesia with ether. This last method enables a surgeon to remove a jaw *en bloc*, so that if properly conducted it is at least competent for all dental exigencies.

LORD ROBERTS'S splendid military services will be ever gratefully remembered by his country, and not least in connexion with the war in South Africa. He has also indirectly done another huge service to civilisation at home. It seems

certain that his letter on "treating," published in our issue of Nov. 10th, is having a much wider application than the one which he intended. Lord ROBERTS is naturally jealous for the honour and character of the men whom he has led, of whom he is proud, who "bore themselves like heroes on the battlefield and like gentlemen on all other occasions," whom he "trusted implicitly" and did "not trust in vain." It was his right to speak a few plain words on anything that concerned their welfare to the people of this country whose emotions have been so deeply stirred by the events of the year and whose information on many points connected with the campaign has been as inexact as profuse. And he has cautioned the public as to a particular method of showing their gratitude to the brave troops returning from the seat of war—a method which is full of discredit and dishonour both to the men themselves and to their friends. Right well has Lord ROBERTS spoken. He does ample justice to the honourable bearing and gallantry of our sailors and soldiers and to the keen appreciation of these qualities in the civil population at home, while he implores the people not to show their appreciation by the degrading habit of offering drink. Lord ROBERTS'S recognition of the good sense of the people at home will make them more ready to respect his wishes. Those wishes should command universal attention and no self-respecting man or woman should venture to offer drink to the returning troops in the street or in the public-house. Lord WOLSELEY, who, like Lord ROBERTS, has published his views on this matter, has long been telling us that the army is a great school of discipline. And we very much mistake if the many independent witnesses to the character and conduct of our army in South Africa will not confirm the testimony of the two distinguished commanders to the effect that the discipline has reacted splendidly. We know of good judges in the Volunteer force, who have shared the brunt of the war in South Africa with Her Majesty's regular soldiers, and who are resolved that henceforth no one shall speak slightingly in their presence of the virtues of the rank and file of the British army. Why, then, try to tempt them?

It has to be remembered that under short-service regulations a soldier is not only a soldier. Our wars are not his only occupation. He comes from and returns to civil duties after the expiration of his term of service. Such is the proper respect of employers for him that in most cases his civil place is kept open for him if his military duties take him away from civil employment. It is certain that more favour yet will be shown to men who crowd into their life service to the State and service to their employers—always provided that their moral character is not impaired. Here comes the responsibility of the leaders of the army. They wish to restore the men of whom they are so proud as soldiers to their homes and to their employers unimpaired and unbesmirched. He who would intercept the soldier fresh from the field where all his virtues have been splendidly displayed on his way back to civil life and duty, and lure him into an act of vice or drunkenness, may call himself the soldier's friend, but he is the soldier's enemy and should be recognised as such. We believe that the words of Lord ROBERTS and Lord WOLSELEY will conduce to good results. The whole subject of "treating" is one that merits deep consideration. The medical profession has long been teaching that casual drinking is bad. Most "treating" is of this nature. The drink so taken is taken without food; it is taken without needing to be taken; it is superfluous; it leads in a large number of instances to intemperance. From the pulpit no less than from the medical consulting-room these points have been urged without much effect. But now that the ruling spirits of our army have spoken in their support we look forward to reform. The word of our great soldiers will prove, particularly at this juncture, to be more powerful in the reform of our absurd drinking customs than the sermons of preachers or the opinions of men of science, and will counter-balance the harm done by the extreme dogmas of fanatics. What is true for the army is true for the whole population. And especially true for those who live by labour, who need to spend wisely what they make, and who can only rise in the social scale by strength of character and self-denial. Labouring families must suffer some degree of starvation if a third or a fourth of the wages which they earn goes into the coffers of the publican instead of into the coffers of the butcher, the dairyman, and the tailor. The practice of "treating" is wholly bad, because it leads to casual drinking, a habit which lays the foundations of disease. It lessens the sound nourishment of families. It promotes laziness. It degrades the sentiment of self-respect and takes the fine edge off many moral qualities. It powerfully antagonises the remedies of the physician and of the moralist alike.

For which reasons we welcome the formation of any association having as its aim, or one of its aims, the prevention of casual drinking. The Church of England Temperance Society has led the way in this direction. And now we learn that in Scotland a new society has been formed, with His Grace the Duke of SUTHERLAND as President, to be called the "Scottish Self-control Society," or briefly the "S.S.S." The members undertake three things:

1. Not to drink intoxicants before noon or at any time except at a regular meal.

2. Not to treat—i.e., not to offer or to accept alcoholic drinks except with a regular meal.

3. Not to give or to accept drink in return for services rendered.

That in a country like Scotland, famous for its religious, intellectual, and academic superiority, the people, without distinction of church or class, should consume alcohol, chiefly in the strong form of whisky, at all times and on all occasions has long been an inexplicable fact. We do not know whether the "Ten-tumbler Club" still survives, but it is not many years since it existed and included men of high character and celebrity. When elders and professors have been involved in the habit of drinking a poisonous quantity of alcohol daily how could a high standard of national sobriety be expected? The use of whisky by the Scotch has proved infectious, and it has extended to England on a scale which deserves, and is now receiving, the grave study of the medical profession whose authority is too often quoted in its support. We may hope that the time of the strange belief that it is a compliment—a friendly act—to a man to press him to drink is about to pass away. The fact that an important section of Scottish society recognises the

baneful influence of casual drinking is of good omen. We are pleased to see in high office in the "S.S.S." a high theological authority like Professor CHARTERIS, D.D., and Sir WILLIAM MUIR, K.C.S.I., Principal of the University of Edinburgh. No class, by adhering to the Society, can do more good both to itself (we regret to say) and to the Society (we are proud to remember) than the medical schools of Scotland. For the medical students of Scotland have generous and hospitable traditions which lead them too often to compliance with the customs which it is the object of the Scottish Self-control Society to destroy. We wish the movement all success.

Annotations.

"Ne quid nimis."

A CORONER'S VIEWS OF MEDICAL EVIDENCE.

ACCORDING to a paragraph in the *Yorkshire Post* Mr. J. S. Walton, M.D Erlang., L.S.A., one of the coroners of that county, holds opinions with regard to the scope and conduct of inquests to which we must beg to demur. He is stated to have said "that it was ridiculous to think that medical evidence was necessary at all inquests. To have a post-mortem examination on every occasion was a waste of public money to which he was strongly opposed. Some of the members of the county council evidently thought the coroner's court was a court of medical inquiry. It was nothing of the kind, and he thought that the members of a body like the county council ought to know what they were talking about." But were the members of the county council so ignorant that they did not know what they were talking about? and is a coroner's court not a court of medical inquiry or anything of the kind? We will pay the coroner and the county council alike the compliment of assuming that neither ever contemplated the holding of a post-mortem examination in every conceivable case where an inquest is necessary. For example, where a man has thrown himself in front of an express train and has been cut into fragments by the wheels a post-mortem examination in the ordinary acceptation of the term may not be indispensable. The cause of death is hardly obscure in such a case; but is medical evidence therefore not to be heard at the inquiry if it be obtainable? Evidence as to the state of the mind of the deceased would surely be desirable if it could be called. And in any case that does not involve an obvious cause of death, will it not be a source of danger to the community if the true cause is not established by the best possible evidence? It is the duty of the coroner to hold an inquest in all cases of a sudden death where the cause is unknown. Are the plausible suggestions, for example, of relatives to be taken as evidence of how the deceased met his end? Or is it to be borne in mind that inquests are held in order that there may be certainty and that that certainty can only be attained in one way—namely, by considering the evidence of skilled and independent witnesses, for the giving of whose testimony it may be necessary that a necropsy should take place? Of course, in many places where death is reported to the coroner he may not consider an inquest necessary. He may satisfy himself, if he chooses to take the responsibility, even without the opinion of a medical man, as to why the person in question died, and give his order for the burial of the body accordingly. We are not here discussing the wisdom of his taking this course except in very clear cases, but we can hardly see how if he has once decided that the case is one for inquiry he can at the same time expect the jurors to decide rightly without having medical testimony before them. We have pointed out that there may be reasonable exceptions to this, but we assume that these were intended by the county council, of which Dr. Walton appears to have spoken in terms which are the more to be regretted as Dr. Walton himself holds medical qualifications.

EXPECTED VISIT OF COLONIAL TROOPS AND THEIR MEDICAL CORPS.

THERE is a prospect that within a short time London will be honoured with the presence of representatives of the Colonial troops who have done such splendid service in the war in South Africa, including representatives of the Colonial Medical Corps. We trust that the opportunity of showing hospitality to them will not be lost. The medical profession will doubtless devise some way of doing honour to their Colonial brethren, whose services have been so valuable, and we sincerely trust that the way selected will be one in which all ranks and sections of the profession may unite. Probably, after the hardships of war and the discomforts of the sea, our Colonial brethren would much appreciate the private hospitality of their metropolitan brethren and a short experience of the quiet home-life of London.

THE EASTBOURNE GUARDIANS AND VACCINATION.

THE position of a defendant to a plaint in the county court against whom judgment is given for a paltry sum of £2 11s. 6*d*. is not at any time one of dignity, still less is it so when a judge of well-nigh 30 years' experience accompanies his decision with the stinging criticism that he has never known a more contemptible or dishonest defence than that which he had just heard raised. It was in this ignominious position that the guardians of the poor at Eastbourne deliberately placed themselves and the district of which they are the representatives by refusing to pay the justice's clerk's fees incurred by their vaccination officer in taking out summonses against various persons for not having had their children vaccinated according to law. The justice's clerk sued the vaccination officer who clearly was primarily responsible, the question remaining whether the guardians were liable to recoup their vaccination officer, and in order that this might be ascertained, by the learned judge's direction the guardians had been added as third parties. The guardians endeavoured to set up the statutory defence that the debt claimed against them should have been paid, if at all, during the half-year in which it became due, or three months after, but they were not permitted to rely upon this as, possibly to show their contempt for the technicalities of the law, they had omitted to give the prescribed notice of their intention to do so. In any case, however, it would not have availed them, as His Honour found that the time ran from the date when they first resolved not to pay, which was some time after the debt was incurred. Their contention that a vaccination officer has no authority to take proceedings without general or specific instructions from the guardians equally failed to convince Judge Martineau; that it should have been seriously raised considering the decisions that have been given upon the subject by the High Court seems strange; and it is not surprising that in the end judgment went against the guardians, accompanied by the remarks quoted above and by a refusal of leave to appeal. The question as to who pays the costs incurred by the unsuccessful defendants in such legal proceedings as these remains. Do guardians in such cases defray them out of their own pockets? They can hardly be justified in taking them out of the pockets of other people unless before they decide upon resistance in a court of law they are advised by counsel of recognised position

that resistance is their duty and that it is likely to meet with success.

THE PREVENTION OF TUBERCULOSIS.

A REPORT presented to the vestry of Clerkenwell by Dr. George Newman, medical officer of health of that parish, will be found to contain a useful summary of what is at present known on the subject of the prevention of tuberculous disease. In the latter portion of the report, which has been published in pamphlet form, Dr. Newman gives full details of the precautions which ought to be attended to by the patients and their friends; he also recommends voluntary notification of cases of phthisis, and describes the methods of disinfection which may be undertaken by the sanitary authorities after the death of a patient.

THE INFLUENCE OF CLIMATE UPON MENSTRUATION.

IN THE LANCET of Nov. 10th (p. 1347) Mr. W. J. H. Hepworth recorded a most interesting case of amenorrhœa, in which the patient had found that a visit to the country was sufficient to bring on her periods. With such certainty did this occur that she formed the habit of going out of town for a couple of days in each month when she at once became unwell, although if she remained in London the period invariably failed to appear. Such a marked instance as this of the influence of climate upon menstruation is seldom met with. It is a common enough matter for young women to suffer from amenorrhœa when they first come to London from the country, but so immediate and certain an effect as is apparent in the case recorded is of very rare occurrence. A considerable amount of study has been devoted to the influence of climate upon menstruation. There can be little doubt but that it plays an important part in determining the age at which puberty occurs, but is only one—perhaps, however, the most important—of many factors influencing the result. Marc d'Espine, who made some special investigations upon the subject, came to the conclusion that the onset of puberty varies directly with the latitudes, the tendency being for the first menstruation to occur at an earlier age the nearer the equator is approached. The climate of a country plays, however, a more important part than its latitude, and the variations observed in the age of puberty in different countries bear a close relationship to the average temperature of the air in those countries. Krieger has drawn up an elaborate table showing the exact age at which puberty occurs in different latitudes, and from this it can be seen that while the average age in Swedish Lapland is 18 years, in London it is 14 years and nine months, and in Sierra Leone 10 years. The matter has been almost entirely considered from the point of view of the time of the occurrence of the first menstruation, but the influence of a climate in producing an early or late puberty may well be regarded as indicating its probable effect upon the occurrence or non-occurrence of menstruation after puberty has been established. That climate plays any part at all in the matter has, however, been denied by many authors, who hold that the question is rather one of race and nationality. In support of this they bring forward the fact that women of different nationalities inhabiting the same country under similar climatic conditions do not begin to menstruate at the same age. In Hungary, for instance, Joachim has shown that the average age at which puberty occurs amongst the Magyars is from 15 to 16 years, amongst the Jews from 14 to 15 years, and amongst the Slavs from 16 to 17 years. This fact does not, however, show that the influence of climate is of no importance. To affirm this it would be necessary to prove that women of different nationalities inhabiting the same country under similar climatic conditions for very long periods of years had continued throughout to menstruate for the first time at the same average age. In discussing the onset of puberty many other conditions remain to be considered, such as race, nationality, mode of life, station in life, the early excitation of the sexual feelings, and the question of nutrition and clothing. Mr. Hepworth's case, however, proves that change of climate alone may have a marked effect upon menstruation. Nor is this surprising when we consider that the whole question is largely one of nutrition. Heat and sunlight are amongst the most important factors of nutrition, and the early onset of menstruation amongst the inhabitants of the countries near the equator is no doubt in part due to the great heat and the large amount of sunlight to which they are exposed.

THE QUALIFIED QUACK.

WE record in another page the fact that the Royal College of Physicians of Edinburgh has purged its Register of a name that has for some time brought it discredit with impunity. One of the scandalous advertisements of "Dr. Harman Tarrant" lies before us culled from the trade columns of the *Australasian*, a newspaper which the advertisement requests those responding to mention. The advertiser gives an address at Sydney, and invites those who consult him, if they prefer to do so, to address him at a box rented in the Sydney Post Office. He also informs those who may desire his advice personally or by letter that during his recent world-wide travels he has "discovered a new method of healing,' which, apparently combined with "knowledge of special complaints gained by careful study and observation in the principal hospitals of the world," enables him to cure persons suffering from such "dangerous symptoms" as, for example, indigestion, weak eyes, or a sallow skin; while another paragraph equally skilfully worded in order to bring into his net those who may really need medical or surgical assistance, promises treatment, in return for a fee of £1, for a miscellaneous list of complaints that comprises fistula, piles, constipation, hip disease, Bright's disease, dropsy, and worms. The whole is, in fact, an elaborate and aggravated example of the ordinary quack's advertisement, including the usual promise of a free consultation, but the feature which renders it especially dangerous, a feature to which we have made previous reference, is that the advertiser appends to his name (and until the present action taken by the Royal College of Physicians of Edinburgh had the right to do so) the letters F.R.C.S.E., L.R.C.P.E., L.M.R.C.P.E., L.R.C.S.I. It is obviously unfair both to the general public and to members of the medical profession at work in a distant colony that conduct of this kind should be permitted by universities and corporations in the mother country. Every step should be taken by the authorities as promptly as may be to enable those in the colony to protect themselves. The Royal College of Physicians of Edinburgh has deprived Tarrant of two of his advertised qualifications; it now remains for the Royal College of Surgeons of Edinburgh and the Royal College of Surgeons in Ireland to deal with the other two.

STREET NUISANCES.

IT will be remembered that some time ago the London County Council and representatives of the Corporation of London, the vestries, and the district boards held a conference to consider regulations about the streets and street traffic. A committee was appointed and on Nov. 7th the report of this committee was presented to, and received by, the conference. Several excellent regulations were proposed for the removal of refuse, the chief among them being "that in the opinion of the conference it is highly desirable that in all streets notified by the police as being those where house

refuse must be placed on the footway the hour for the removal of the refuse shall be 9 o'clock and not 10 o'clock as at present." Another recommendation was that with regard to the clearing away of snow the old rule which entailed that duty on the householder should be reverted to. This recommendation was rejected. Nothing further was recommended as regards street cries, and as regards street music the committee reported that they considered it undesirable that street musicians should be required to take out a police licence. They recommended, however, "that wherever two-thirds of the householders in any road, street, terrace, or collection of houses sign a notice to the Chief Commissioner of Police that they desire to be unmolested by itinerant musicians the police should be instructed to order such street musicians to move from such locality." The recommendation was adopted. Other recommendations dealt with the placing of the names of streets so that they can be seen—a sorely-needed reform—and the attention of the police was "invited to the delivery of barrels." We consider that the attention of the police might be profitably called to the delivery of a great many other things besides barrels—biscuits, soap, hampers, flour, and the like, to say nothing of barrows laden with ladders, spikes, and coils of wire with which the National Telephone Company block the footway. The Mayor of Westminster might also draw the attention of his brother of Holborn to the filth and mess caused by Covent Garden Market. But until that market becomes as great a nuisance as Smithfield we suppose it will linger on. The Augean stable of London needs a very Hercules to cleanse it, but we are glad to see that at least the existence of nuisances is recognised. We are sorry to see no reference made to the perfectly avoidable mess made by waste paper such as news posters and omnibus and tramway tickets.

ON THE CEREBRAL CONDITIONS ASSOCIATED WITH SACCHARINE DIABETES.

DR. LOUIS DESBONNETS (*Thèse de Paris*, 1900) gives a long account of the above subject, based on the study of 29 cases whose clinical history and symptoms are recorded at some length. But little attention has been paid in text-books to the cerebral troubles associated with diabetes, Bouchard having stated in 1885 that "the nervous symptoms of diabetes though frequent are but little known." Among the more frequent symptoms recorded by Dr. Desbonnets are general muscular feebleness and proneness to fatigue, temporary and transient (sometimes permanent) attacks of hemiplegia and monoplegia which are of an atypical character, neuralgias (Buzzard) affecting by preference certain nerves, such as the sciatic, crural, trigeminal, intercostal, and occipito-cervical, and probably indicating commencing peripheral neuritis. Visual disturbances, diplopia from weakness and incoördination of the ocular muscles, and temporary attacks of amblyopia are not uncommon. The general cerebral state is one of apathy and loss of all individuality and initiative in conduct. Later, ideas of ruin, hypochondriacal melancholia, and delusions of persecution may appear, the particular form of mental disturbance taking its special colouring from any neurotic tendency which may be present (Westphal). Vertigo, headache, insomnia (Pierre Marie), and nightmare are frequent in diabetics. The tendency to apathy and torpor may at times deepen into narcolepsy and this may occur periodically. The following is one of the surgical cases recorded in the *Thèse*. A young shoemaker, of stout build (a tendency which he inherited), had since 1896 suffered from polyuria, especially during the night. One morning on waking he was surprised to find that his left leg was paralysed and insensible and could not be moved. The following day the arm became similarly affected, and finally the left side of the body grew hemiplegic and hemianæsthetic. He was unable to close the left eye and could not see objects in the left half of the visual field (hemianopsia). The eyelid recovered soon after but the general hemiplegia persisted. The urine was found to contain 3·3 per cent. of sugar and to have a specific gravity of 1035. Polydipsia and dryness of the mouth were present in a marked degree. Power returned partially to the left arm and leg. The knee-jerks were absent. Ophthalmoscopic examination showed a normal fundus in each eye. Both smell and taste were diminished on the left side and hearing was impaired in the left ear. The diagnosis was doubtful, but the symptoms pointed to a partial damage of nerve-fibres in the posterior part of the internal capsule of the right cerebral hemisphere. Fürsterer has found minute capillary embolisms (supposed to be produced by granules of glycogen) in the brains of patients dying from diabetes with symptoms of temporary paresis or paralysis, the more grave cases of persistent hemiplegia showing distinct cerebral foci of softening, and Dr. Desbonnets inclines to the same belief.

TUBERCULOSIS IN THE FRENCH ARMY.

IN a short article published in the *Archives de Médecine et de Pharmacie Militaires* for October Inspector-General Kelsch recapitulates his views regarding the incidence of tuberculous diseases in the French army. The admirable labours of Villemin, of Koch, and of their followers have, he says, reduced the etiology of tuberculosis to an expression as simple as it is luminous. Monopolised by experimentation, which has constituted its pathogeny upon the image of the disease as observed in animals, forsaken in a great measure by clinical observation, which has been compelled to efface itself before the brilliant notions of the laboratory, tuberculosis in man has become a disease of inhalation and ingestion. This being so, the director of Val-de-Grâce is convinced that the situation is fraught with danger. To begin with, in spite of the incessant anti-microbic warfare during the last 10 years, tuberculosis is still progressing. All the artifices of statistics cannot conceal this painful fact. The disease causes more damage than ever among young soldiers of less than a year's service, whereas amongst veterans it is stationary or even decreasing. Why should there be this discrepancy? Are not all ages equally liable to microbic attack? Moreover, young soldiers suffer chiefly during their first six months which are also the most inclement of the year. If tuberculosis were communicable solely by contact from man to man all ages should suffer alike, and no season should be exempt more than another. Inspector-General Kelsch is firmly of opinion that it is the conscript who infects himself. Many conscripts when they reach barracks are the hosts of latent tuberculosis; fibro-caseous nodules, solitary or multiple, scattered amongst the mediastinal or the mesenteric ganglia, in the lungs or in some other organ—a condition of things that is perfectly compatible with a vigorous constitution and flourishing health, and one that is not to be detected by ordinary examination. In fully a third of the necropsies which he has conducted on subjects who died from other causes than tuberculosis Inspector-General Kelsch has met with these hidden lesions, and they were likewise present in 51 out of 120 unselected conscripts whom he inspected on joining by means of the radioscope. He believes that the deposits may take place in utero and that most certainly they are of very frequent occurrence during childhood. Although latent they are by no means defunct, but, on the contrary, retain the elements of vitality, spores ready at any moment to evolve, veritable sparks which brood beneath the ashes[1] and constitute a

[1] Ev'n in our ashes live their wonted fires.—*Gray*.

perpetual menace for the individual. Inspector-General Kelsch failed in his attempts to implant tuberculosis in 80 guinea-pigs which in the course of one and a half years he inoculated from the sweepings of barrack-rooms at Lyons, but he is nevertheless far from disregarding the dangerous nature of floor-dust and fully appreciates the importance of the sputum as a vehicle of contagion. We should not, however, refuse to acknowledge the possibility of auto-infection or fail to adopt measures for the alleviation of so great an evil. The virus of rabies or of anthrax once implanted is strong enough to triumph over all resistance of its own accord, being equal to the task of conquering human vitality unaided; but in the case of phthisis pulmonalis the bacillary enemy is feeble enough to require an ally in the citadel itself, it cannot subdue the garrison unless there is complicity amongst the defenders. Before the bacillus of Koch can effect a serious lodgment in the human organism it must have the assistance of a traitor, and unfortunately the disaffected are numerous, chief among the number being insufficiency of proper food, *surmenage*, defective cleanliness of body and habitation, impure air, dark rooms, and, above all, alcoholism. The only solid prophylactic basis whereon to build in the case of tuberculosis consists in the development of the soldier's physical vigour together with the amelioration of his hygienic and social surroundings.

THE HOWARD ASSOCIATION AND STREET RUFFIANISM.

THAT excellent society the Howard Association has issued its annual report dated October, 1900. In dealing with the work of the year the report treats of many subjects, such as reparation to the injured as well as punishment for the injurer, the International Prison Congress recently held at Brussels, admonition and punishment, the housing of the poor, and the rural exodus. In addition to these the questions of juvenile roughs and truants, the Juvenile Offenders Bill, and the temperance question are discussed. With regard to the first of these the association speaks in terms of praise of the children's courts existing in Australia, in which school attendance cases and children's offences in general are dealt with. Such courts would, we think, do good work here, provided, of course, that they were quite independent of the School Board. With regard to the Juvenile Offenders Bill, which was dropped owing to the weakness of the Government in giving way to the cries of faddists, the association considers that if the birching clauses were not to apply to children under 10 years of age the Bill would be a good one. Even Mr. J. A. Pieton prefers the birch to the gaol. We can only hope that the Bill will be carried through by the present Parliament and that a pistol clause will be embodied in it. With regard to Hooliganism the report says:—

> "Whilst whipping is a useful check to the worst forms of 'Hooliganism,' the prevention of the evil at its *sources* is of far greater importance. Idleness, parental neglect, and want of occupation and of healthful physical exercises are amongst these causes, together with frequent magisterial laxity in failing to support the police."

With this we certainly agree. Magisterial laxity is responsible for much of the excess of violence which has of late been evident in the streets. For instance, at Southwark Police-court on Oct. 24th two young roughs, aged respectively eighteen years, were brought before Mr. Kennedy on a charge of "using insulting behaviour." Evidence was given that prisoners belonged to a gang who hustled foot passengers and menaced shopkeepers. Mr. Kennedy is reported as saying that "such ruffianism must be put down." And what followed? A fine of five shillings or five days' imprisonment. We can almost hear Mr. Kennedy saying, "D'you know, I shall really have to give you a good hard knock." Such trivial punishment will never check crime. By all means let us use every means of prevention, but the full-blown Hooligan, as we have said over and over again, must be severely dealt with.

THE CARDIFF INFIRMARY.

WE have upon several occasions drawn attention to the unsatisfactory financial position of the Cardiff Infirmary and have expressed astonishment that so excellent and well-administered an institution should meet with such inadequate support from the inhabitants of the district as to leave an ever-increasing burden of debt upon the managers. There is perhaps at the present time no more prosperous town in the country than this South Wales port, and as all classes are participating in the good times there should be little or no difficulty in liquidating the debt of £10,000, the amount which the adverse balance of the past few years has now reached. The erection of the new seamen's accident hospital has no doubt adversely affected the revenues of the infirmary, but now that the establishment of the former institution is assured by the munificence of the late Marquis of Bute the claims of the infirmary may deservedly be considered. The newly-elected mayor of Cardiff, Councillor Thomas Andrews, has already evinced a desire to raise during his term of office a sufficient sum to enable the infirmary to be placed upon a firm financial footing, and at the mayoral banquet held on Nov. 9th last he obtained subscriptions for this purpose amounting to several hundred pounds. We congratulate the mayor upon his benevolent resolve and trust that long before next November we may be able to felicitate him upon the success of his enterprise.

CACODYLIC MEDICATION.

WE have previously referred to this mode of administering arsenic, which has been recently introduced by M. Armand Gautier.[1] A lecture on the subject which was delivered at the Medical Graduates' College and Polyclinic by Dr. William Ewart and which is published in the September and October numbers of the journal of that institution well describes the present knowledge on the subject. Cacodyl is a dimethyl arsenide obtained from AsH_3 by substituting methyl for hydrogen. It is a highly poisonous fluid with an unpleasant odour. In oxide of cacodyl these objectionable features are still present. By further oxidation the metal passes from the triad into the pentad stage forming cacodylic acid. In sodium cacodylate it loses virulence and smell. This organic compound contains 46 per cent. of arsenic and has the great advantage over ordinary preparations of relative freedom from irritating and poisonous properties. In it arsenic can be administered in quantities previously unheard of without misgivings or risks. Dilute solutions are well tolerated by the stomach. Cacodylate of sodium is a highly soluble deliquescent solid free from smell and taste. In consequence of its deliquescence pills cannot be prepared in the ordinary way. Cacodylate of sodium may be given by the mouth or rectum or subcutaneously. The two latter methods have been advocated in preference to the former because they are less liable to lead to the formation of reduction compounds. By the mouth half-grain pills may be given three or four times daily or the equivalent in solution either at or between meals. By the rectum an initial dose of half a grain may be given to adults and a third of a grain to children suffering from chorea. From one to four drachms of water may be used as a vehicle. Hypodermically one-third of a grain in 10 minims of water is an initial dose and may be increased to one grain or more. Moderate doses of the drug may be given for long

[1] THE LANCET, Nov. 18th, 1899, p. 1408, and March 10th, 1900, p. 736.

periods, but the patient should be watched. Cacodylate of sodium may be given with an efficacy greater than that of ordinary arsenical preparations. In all cases in which arsenic is indicated—pernicious anæmia, chorea, malaria, and Graves's disease—even in cancer, particularly of the stomach, it has been declared to be valuable. According to reports from abroad, in phthisis it is the best medicinal remedy that has been used. Dr. Ewart finds that the tendency to hectic fever is checked, cough and expectoration are diminished, and the general condition rapidly improves. He has also found it useful as a nerve tonic in many states of depressed health. This new method of administering arsenic appears to have great possibilities and to be a distinct advance in therapeutics. But, like all new methods, its claims should be regarded with reserve. The question of the maximum dose has still to be solved. We observe that Dr. Ewart describes the freedom from poisonous properties as relative. Cannot something more definite be said? However free from irritating properties cacodylate of sodium may be it seems to us that the dangers from remote toxic effects—e.g., neuritis and eruptions—would be just as great from its use as in the ordinary method of administration. Such a powerful remedy as arsenic should not be given in any form in large quantities without great care.

A CURIOUS INSTANCE OF LEAD POISONING.

IT was reported in the newspapers this week that one of the officers of the Metropolitan Fire Brigade was seriously ill from the effects of lead poisoning, the illness having been caused by the officer, when he was on duty during a fire at a tea warehouse, inhaling the fumes from some of the burning tea-boxes which were lined with lead. The theory of the inhalation of lead fumes is probably not correct. Of course, lead melts very easily at a temperature of 327° C. and eventually boils and volatilises at a white heat. It would clearly be impossible for a person to inhale these fumes. If the case is correctly described as one of lead-poisoning arising from contact somehow or other with lead cases in a fire it is more probable that the intense heat converted the lead in part into oxide. It is conceivable then that the smoke and fine ashes scattered broadcast by the draught might contain fine particles of oxide of lead. Such a draught would prove undoubtedly poisonous, part of the lead being inhaled and part absorbed through the skin. In that case it is difficult to see why the other firemen in attendance were not also affected; they may have been, but it is not so stated. If the report be true the occurrence is certainly a remarkable one, and as far as we know it is the first time that lead-poisoning arising in such a way has been recorded.

BOARDS OF GUARDIANS AND VACCINATION.

AT a recent meeting of the Wigan Board of Guardians a circular letter was read from the Derby Union embodying resolutions passed respecting the Vaccination Acts and including one that it was no longer necessary to retain on the Statute Book a law making the vaccination of infants compulsory. It was moved and seconded that the resolutions should be endorsed and that a communication should be sent to the Local Government Board to that effect. Dr. Benson moved an amendment believing that it would ill become him to allow such a resolution to pass without comment. He submitted that vaccination was not compulsory, inasmuch as the late Government in its wisdom had thought it fit and proper to give everybody a chance of avoiding vaccination by a conscience clause. He failed, therefore, to see how vaccination could be said to be compulsory when everyone could claim exemption. But since the new Act was passed and the people were allowed to take advantage of the conscience clause more vaccinations had taken place throughout the country than before. According to a Parliamentary return they found that from Jan. 1st to June 30th, 1898, the number of vaccinations from different unions in England and Wales was 277,839, whereas in the corresponding six months of the next year there were 355,000, which were practically 70,000 more. There was an increase in the second six months. From July to December, 1898, they had 222,475, and in the second six months of 1899 313,797. Another paragraph stated that medical testimony could not be used as an argument in favour of vaccination. Now he disputed that altogether. If they would take a census of the medical profession they would find the profession generally in favour of vaccination. It had been shown over and over again that when small-pox appeared in any place those who had been vaccinated successfully, and still more those who had been revaccinated, were not only less liable to take small-pox, but if they did take it the percentage of deaths was very much smaller than in those who had not been vaccinated at all. The mortality among those who had been vaccinated varied from 1½ to 4 per cent, whereas the mortality of those who had not been vaccinated was at least 37 per cent. If they undid what had been done in the last century, in time to come they would probably find small-pox in the land as bad as before. As a matter of principle he proposed that the circular should lie on the table; there was no seconder, however, and the motion was passed. Resolutions of this kind have neither any influence on the Local Government Board nor on the general public. A proportion of guardians are disappointed with the number of persons who are sensible enough to protect their children against the scourge of small pox and also with regard to the cost. The cost, however, of an epidemic of small-pox is much greater.

"ABSENCE OF MIND" IN RAILWAY OFFICIALS

THE serious character of the recent railway accident at Slough, combined with the fact that the driver of the express train took upon himself the whole responsibility for the accident, has aroused an unusual degree of public interest in the catastrophe. This has been recently stimulated afresh by the report of Lieutenant-Colonel Yorke, one of the Board of Trade inspectors. Such a report, seeing that it was admitted that the express train had run past two sets of signals which were against it, naturally discusses the cause of the failure on the part of the driver of the express to recognise that the signals were against him, as well as any remedies that may be available against such an accident in future. The alternative explanations offered are that the driver was unconsciously drowsy, or that he suffered from the temporary inactivity of the faculties which we know as "absence of mind." The facts that he was 59 years of age and had been up since 5 A.M. are adduced in support of either view. And yet it is probably no unusual experience for a driver of an express train within two hours after mid-day to have been out of bed since five in the morning, and the age of 59 years is not one at which we expect to meet with a condition of senility. In reference to remedies available against the repetition of such accidents, the suggestion is made by Lieutenant-Colonel Yorke that all drivers, or at least those employed on express trains, should be examined by a medical man at the age of 55 years and in each succeeding year. We quite fail to see how such an examination is to be any protection. We venture to think that had Woodman, the driver of the express on this occasion, been medically examined the day before the accident nothing much amiss could have been found in him, and even the most careful examination in similar cases may fail to reveal anything to justify the medical examiner in suspending the driver from work. It is a somewhat uncomfortable thought, but it is by no means unlikely, that an occasional driver or even a

signalman may be subject to a temporary "absence of mind" which may be sufficient to imperil many lives and yet may be of such a character as to be undiscoverable by any kind of medical examination.

DRAINAGE BY-LAWS FOR LONDON.

AT the meeting of the council of the Sanitary Assurance Association, held at the offices, 5, Argyll-place, Regent-street, W., on Nov. 12th, Mr. Andrew Stirling in the chair, the new drainage by-laws, as drafted by the London County Council, were under consideration, and on the motion of Mr. William S. Hulsey, seconded by Dr. Edward H. Willoughby, the following resolution was passed:—

That, in the opinion of the Council of the Sanitary Assurance Association the drainage by-laws proposed by the London County Council ought to be submitted to the new Metropolitan Borough Councils before they receive the force of law, and that the President of the Local Government Board be requested to submit the proposed by-laws to the said Councils before deciding as to their confirmation.

We have also received from Mr. Mark H. Judge a copy of a letter to be signed by metropolitan ratepayers and residents and to be presented to the Local Government Board. The letter refers to the well-known case which came up at Marlborough-street Police-court in April, 1899, in which a firm of contractors were summoned for having disregarded the by-laws of the London County Council. The contractors were fined £2 and costs, but neither the Council nor the vestry did anything more to enforce the law. The letter is signed by Mr. Judge and various co-signatories comprising prominent medical men and others interested in sanitation.

RUPTURE OF SPLENIC ANEURYSM DURING LABOUR.

ANEURYSM of the splenic artery is very rare. A remarkable case, reported by Mr. J. D. S. Nodes and Dr. F. Hinds of Worthing, was read by Dr. Spencer at the last meeting of the Obstetrical Society of London. The patient was 33 years old. Her fourth labour was perfectly normal and it lasted six hours; the placenta speedily followed the fœtus. Ten minutes later the nurse noticed that the patient's face became dark and a kind of convulsion set in with violent excitement. At length the patient turned pale, and she died in about a quarter of an hour. The coroner ordered a post-mortem examination to be held. The peritoneal cavity was full of blood, chiefly fluid, and an aneurysm of the size of a grape was detected on the splenic artery; it had ruptured. The specimen, which was exhibited, is preserved in the museum of University College, London.

THE DISSOLUTION OF BONES BY BACTERIA.

IT is pretty certain that bacteria play an important part in the dissolution of bones, and if rapid dissolution is desired it follows that the bacteria should be afforded every opportunity of doing their work. This may have some bearing on our methods of the disposal of the dead. The action of bacteria is not likely to be facilitated by burying bodies at a comparatively considerable depth beneath the surface of the earth. Recent experiments have shown that when sifted bone-meal was inoculated with various bacteria and kept wet a remarkable resolution of the constituents of the bone, including the inorganic as well as the organic matters, took place. The organic matters resolved, as might be expected, into simpler compounds of the type of ammonia, but the most remarkable result consisted in the fact that the insoluble phosphate of lime was converted into soluble phosphoric acid. The experiments were confirmed in a practical way by manuring oats grown in large pots with bone meal and inoculating with different bacteria. The yield of oats was far greater when the bone meal was inoculated in this way. Several species of bacteria were employed with widely varying results. As a rule the organic substances which act as poisons in the human body are of a very complex nature, and as they are resolved into simpler ones their toxicity diminishes and finally disappears. In the putrefactive process the organisms concerned are rapidly breaking down complex toxic substances into simpler innocuous products. Bacteria, however, as in certain diseases, may elaborate poisons of a highly complex constitution, and thus we have two great classes of organisms from the point of view of the healthy human subject, the benevolent and the malevolent.

THE LATE PROFESSOR A. W. HUGHES.

THE Council of the University College, Cardiff, has resolved to establish an Alfred Hughes Memorial in connexion with the Medical School of the College. An influential committee is being formed and a meeting will be held on Nov. 24th, when it is hoped that all will attend who are interested in the establishment of a permanent record of Professor Hughes's great services to the College as its first professor of anatomy. The form which the memorial will take is to be decided upon at this meeting. Friends desirous of joining in the movement, if unable to attend the meeting, should communicate with Mr. J. Lynn Thomas, Mr. D. W. Evans, or the Dean of the Faculty of Medicine.

HISTORICAL SKETCH OF THE PLAGUE.

A MOST interesting historical survey of the plague has been published by Dr. P. Hauser under the title "La Peste dans les Temps Anciens et Modernes et son Avenir en Europe." It forms an extract from *La Médecine Moderne*. To those of our readers who are particularly interested in the history of the plague we can recommend a perusal of this volume, for they will find in it many instructive facts which are not to be found in the ordinary treatises on this subject. The little book consists of 114 pages divided into six chapters. The first consists of a general survey of the plague as it has been reported from early times. We learn that the first appearance of bubonic plague in Europe was in 543, and this outbreak is generally known under the name of "Peste Justinenne." The disease had been raging earlier than this in Lower Egypt and had even spread to Syria and Asia Minor, when it appeared at Constantinople at the date above mentioned. A pandemic form then rapidly obtained and with the highest mortality ever reported, for not only were large numbers of individuals attacked but 90 per cent. of those affected died. The plague disappeared from Europe in 1720 and no further outbreak was recorded until the second half of this century. In Chapter II. an account is given of the disease as it has appeared in Canton, Hong-Kong, and India in more modern times, and the results are added of the various scientific commissions which were appointed to study the extensive outbreak which occurred in Bombay. Chapter III. contains an account of the International Congress in Venice, the important results of which Dr. Hauser duly sums up. In Chapters IV. and V. the outbreaks at Alexandria and Oporto are described, especial stress being laid on the latter epidemic. The proceedings of the International Commission which met at Oporto to investigate the value of inoculation against plague are duly commented on and the conclusions arrived at by the Commissioners are recorded. The Commission recommended that the use of the vaccine should be encouraged as actively as possible, and its employment was particularly insisted on in the cases of those persons who were leaving an infected zone and also in the cases of those who had frequently been in contact with victims of the

malady. The last chapter is occupied with a consideration of theoretical questions which have arisen from the re-introduction of plague at Oporto in 1899, including certain points with regard to the bacteriology and epidemiology of the disease.

DEATH IN THE VAT.

DEATHS in the vat are by no means uncommon judging from the cases reported recently and within a comparatively short time. In some instances, of course, a disaster arises through the deliberate negligence of the vat man; for instance, he may lean over the edge of the vat in endeavouring to control the contents, as with a stirrer, and over-balancing himself may tumble into the liquid, and if he is not drowned or scalded he may be asphyxiated by carbonic acid or other gas, or the vat may contain poisonous fumes derived from a cleansing fluid or scavenging process which may overcome the workmen who may be lowered into its interior. Occasionally a big explosion occurs in a vat, as by the ignition of the vapour of alcohol in a whisky vat. More recently it is reported that a man and a boy were employed to clean out a vinegar vat of 30,000 gallons capacity. As it proved, they were simply lowered into a lethal chamber and were overcome by the fumes and killed. When attempts at rescue were made one man very nearly lost his life and had to be immediately taken out. It would appear, as we have said, from the accounts of occurrences of this sort which have come to our knowledge through the press that carelessness is particularly in evidence where vats are concerned. And yet, on reflection, the most simple-minded person must know that a vat is likely to contain dangerous vapours or gases. The vat is commonly a receptacle in which a chemical process on a large scale, as, for example, fermentation, is going on, and consequently unbreathable if not toxic gaseous products are being evolved. We have pointed out more than once in these columns that vats and all similar large receptacles should be thoroughly ventilated before an attempt to repair or to cleanse or to descend into them is made. We should like to direct the attention of the Board of Trade to this matter and to ask them to consider whether the industrial processes connected with the use of vats should not be placed under some special regulations.

THE medical profession in Newcastle has sustained a great loss by the death of Dr. Dennis Embleton, in his ninety-first year.

THE autumn dinner of the Irish Medical Schools' and Graduates' Association will take place at the Hotel Cecil on Wednesday, Nov. 28th, at 7.15 o'clock, when the chair will be occupied by the President, Inspector-General W. H. Lloyd, M.D. St. And., R.N. The guests of the evening will be General Sir William Olpherts, V.C., G.C.B., and Mr. Alfred Percival Graves, the genial author of "Father O'Flynn" and other Irish songs.

THE next general meeting of the Medico-Psychological Association of Great Britain and Ireland will be held on Nov. 21st at 11, Chandos-street, W., commencing at 4 P.M. Papers will be read by Sir Dyce Duckworth, Dr. G. H. Savage, and Dr. Lewis Jones. The last paper will be illustrated by electric apparatus and appliances. Members will dine together afterwards at the Café Royal at 8 P.M.

A LECTURE on "Plague" will be delivered in the Anatomical Theatre at the London Hospital Medical College on Thursday, Nov. 22nd, at four o'clock, by Dr. J. Mitford Atkinson, principal civil medical officer at Hong-Kong. Members of the medical profession will be admitted on the presentation of their address cards.

AT a meeting of the trustees of the Hunterian Collection held at the Royal College of Surgeons of England on Nov. 9th, Sir Joseph Fayrer, Bart., K.C.S.I., &c., was unanimously elected a trustee of the Collection to fill the vacancy occasioned by the decease of His Grace the Duke of Argyll, K.G., K.T.

THE annual general meeting of the Anatomical Society of Great Britain and Ireland will be held at St. Thomas's Hospital Medical School to-day (Friday) at 4.30 P.M. A meeting of the Council will be held at the close of the general meeting.

THE annual dinner of the Harveian Society of London will take place at the Café Monico on Thursday, Nov. 29th, at 7 P.M. Members intending to dine should communicate with the honorary secretary at 11, Wimpole-street, W.

THE death is announced of Mr. R. B. Anderson, F.R.C.S. Eng., late of Tobago.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

A QUARTERLY meeting of the Royal College of Physicians of Edinburgh was held on Nov. 6th, Dr. J. ANDREW (President) being in the chair.

Robert Miller Ronaldson, M.D., M.R.C.P. Edin., was admitted by ballot to the Fellowship of the College.

On a ballot the following candidates were admitted to the Membership of the College after examination: William Wood, M.B., C.M. Edin.; George Pratt Yule, M.D, C.M. Edin., South African Field Force; and Stuart McDonald, M.B., C.M. Edin.

The REGISTRAR reported that since the last quarterly meeting 41 persons had obtained the Licence of the College by examination.

The SECRETARY reported that the arrangements with the magistrates and town council for the bacteriological examination of suspected products in respect of tuberculosis, diphtheria, and typhoid fever had now been completed.

With regard to a letter from the Local Government Board for Scotland requesting the College to undertake the investigation of suspected plague products at the College laboratory it was resolved that the request be acceded to.

By vote of the College the two following Licentiates were expelled from the College and deprived of their Licence—Frederick William Kirkham and Harman John Tarrant.

PRESENTATIONS TO MEDICAL MEN.—Mr. Richard G. Dick, M.B., C.M. Glasg., on the occasion of his leaving Burghead, Elgin, was recently presented by a few friends in that town and district with a purse of sovereigns, sovereign-case and matchbox combined, silver cigarette-case, watch appendages, and an illuminated address, in recognition of valuable services rendered by him during the severe epidemic among the children in 1887, as also of the work done by him since 1892. At the same time Mrs. Dick was the recipient of a silver-mounted oak tray.—At the Great Western Railway Station, Bath, on Nov. 11th, the members of the ambulance class presented Mr. A. L. Fuller, L.R.C.P. Lond., M.R.C.S. Eng., of that city, with a traveller's writing desk as a token of appreciation of his gratuitous instructions to the class on first aid. The deputy chairman of the railway company and other officials were present.—At a recent meeting of the Willesden District Council the chairman, Mr. J. S. Crone, L.R.C.P. Irel., J.P., was presented by his colleagues and officials with a handsomely designed solid silver cradle to commemorate the birth of a son during his term of office.

CALENDAR OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE annual calendar has just been published by the Council of the College. Therein appears for the first time a new order of Fellows—viz., "Honorary Fellows"—founded to commemorate the centenary of the College. First on the list appears the name of H.R.H. the Prince of Wales, Duke of Cornwall, K.G., followed by the names of the Most Hon. the Marquis of Salisbury, K.G., and the Right Hon. the Earl of Rosebery, K.G., K.T., together with 35 members of the profession from all parts of the world. There are 1221 Fellows on the roll of the College (as compared with 1215 last year), of whom 1098 obtained the Fellowship by examination, 21 were elected as Members of 20 years' standing under Section 5 of Cap. 15 Vict., 100 are Fellows by election, and two are *ad eundem* Fellows. There are 17,510 Members (against a total of 17,384 last year), and 547 Licentiates in Midwifery—the examination for this Licence having been discontinued since 1878. The Licentiates in Dental Surgery are stated to number 1465 (an increase of 99 over last year) and the Diplomates in Public Health to number 365.

During the past collegiate year 353 candidates presented themselves in elementary biology, 269 of whom passed and 84 were referred. Of 473 candidates who presented themselves in chemistry 285 passed and 188 were referred; in materia medica, of 27 candidates 16 passed and 11 were referred; in practical pharmacy, of 325 candidates 269 passed and 56 were referred. The proportion of fees paid by candidates for these examinations receivable by the College amounted to £1995 10*s.* 6*d.*, the examiners receiving £239 10*s.* The examiners in elementary biology are appointed by the council of the College; those in chemistry, materia medica, and practical pharmacy by the Royal College of Physicians of London under the scheme for an examining board in England.

The examiners in anatomy and physiology for the Second Examination are appointed in conjunction with the Royal College of Physicians of London; they have conducted the Primary Examination under the Old Regulations as well as the Second Examination of the Examining Board. 523 candidates presented themselves for examination in anatomy, of whom 323 passed and 200 were referred. 526 presented themselves in physiology, 318 of whom passed and 208 were referred. The proportion of fees paid by candidates to the College amounted to £3418 3*s.*, of which the examiners received £797 15*s.* 4*d.*

The Board of Examiners in Anatomy and Physiology for the Diploma of Fellow, elected annually by the Council of the College, held two meetings for the examination of 187 candidates, of whom 76 passed whilst 111 were referred. The fees paid by candidates amounted to £1228 10*s.*, of which the Board of Examiners received £748.

The Court of Examiners, 10 in number, are elected by the Council from the Fellows of the College only for a period of five years. They conduct the Third or Final Examination in Surgery of the Examining Board in England as well as the Second or Final Examination for the Diploma of Member under the Old Regulations and the Pass or Final Examination for the Diploma of Fellow. During the past collegiate year the Court held two examinations for the Fellowship and four for the Membership. At the former there were 70 candidates, 36 of whom passed; 31 were referred for six months and three for one year. For the Membership 799 candidates presented themselves in surgery, of whom 485 passed and 314 were referred. The fees paid by candidates for these examinations amounted to £8311 16*s.*, and the fees paid to the Court of Examiners and the Examiners in Midwifery amounted to £3941 11*s.* 6*d.* The Examiners in Medicine under the scheme for an Examining Board in England are elected by the Royal College of Physicians of London. Of 760 candidates who presented themselves for examination 479 passed and 281 were referred. The examiners in midwifery are appointed in conjunction with the Royal College of Physicians of London and have examined 823 candidates, of whom 509 passed and 314 were referred.

The Board of Examiners in dental surgery under the old regulations have held two meetings for the examination of 153 candidates, 104 of whom received the Licence and 49 were referred. The fees received from candidates amounted to £2278 10*s.*, of which the examiners received £642 12*s.* Under the new regulations in preliminary science four examinations have been held, at which 106 candidates presented themselves, of whom 65 passed and 41 were referred. (This examination is identical with Part I. of the first examination of the Examining Board in England and is conducted by the chemistry examiners appointed under the scheme.) For the first professional examination 17 candidates presented themselves for mechanical dentistry, 13 of whom passed and four were referred; in dental metallurgy of the 17 candidates who presented themselves 15 passed and two were referred. The fees received for their examinations amounted to £372 15*s.*, of which the examiners received £96 10*s.*

The examiners in public health appointed in conjunction with the Royal College of Physicians of London examined 53 candidates in Part I., 32 of whom passed and 21 were referred; in Part II., of 37 candidates 30 received their diploma and seven were referred for six months. The fees received by the College for both parts of the examination amounted to £226 5*s.* 6*d.*, and the amount paid to the examiners to £145 10*s.*

With regard to the finances of the College it appears that the income from all sources amounted to £25,211 0*s.* 1*d.*, the largest item being derived from the fees paid by candidates for the diplomas of the College—viz., £17,525 11*s.*, the next largest being dividends on the Erasmus Wilson bequest, £5,097 16*s.* 9*d.*; investments, £879 16*s.* 10*d*; rent from chambers adjoining the College produces £450; hire of rooms, sale of questions and testing antitoxins, £913 11*s.* 8*d.*; receipts from trust funds, £292 3*s.* 8*d.*; incidental receipts at the College, £39 13*s.* 6*d.*; dividends from sinking fund for Savoy estate, £12 6*s* 8*d.*

The expenses for the year amounted to £23 565 2*s.* 10*d.*, leaving a balance at the bank and in hand at Midsummer day, 1900, of £1645 17*s.* 3*d.* (against £1152 4*s.* 5*d.* at Midsummer day, 1899), the largest item being (as in the receipts) in connexion with the examinations—viz., examiners' fees, £7363 13*s.* 10*d.* Half expenses at Examination Hall for the purposes of the examinations, £4029 7*s.* 3*d.* (this amount includes rent, rates, taxes, and insurance, which absorb the no small amount of £1925 7*s.*); expenses of the Fellowship and dental examinations, £491 16*s.* 8*d*; expenses of public health examination, £66 6*s.* 8*d.*; half expenses of the scientific research laboratories on Victoria Embankment amount to £841 14*s.* 10*d.* (this does not include any part of the rent, rates, taxes, insurance, fuel, or light). At the College rates, taxes, and insurance stand at £1570 0*s.* 9*d*; extraordinary expenses—i.e., costs of Crown in appeal *re* Corporation duty, Corporation duty 1894–1899; and fees for new Charter, £999 14*s.* 1*d.*; fees to members of council, £270 18*s.*; stationery, printing, postage, &c., £388 15*s.* 5*d.*; salaries, wages, and pensions in the three departments—museum, library, and College—£4668 19*s.* 8*d.*; lectures, catalogues, specimens, &c., £582 10*s.* 1*d.*; purchase and binding of books, &c., for library, £746 6*s* 5*d.*; fuel and light, £437 15*s.* 1*d.*; trust funds, £235 5*s.* 10*d.*; repairs, painting, and cleaning, £343 2*s.* 11*d.*; law expenses, £180 9*s.* 6*d.*; printing and binding calendar, £98 12*s.* 3*d.*; furniture fittings and miscellaneous items, £249 13*s.* 7*d.*

The secretary's report contains an abstract of the work done by the Council and committees of the College, the Committee of Management of the two Royal Colleges, the research laboratories on Victoria Embankment in conjunction with the Royal College of Physicians, also reports of meetings of Fellows and Members, elections, &c. It also contains an interesting account of the celebration of the centenary of the College.

At the annual meeting of "Fellows" and "Members" held on Nov. 16th, 1899, it appears that in addition to 12 members of the Council only 13 Fellows and 67 Members out of 1221 Fellows and 17,510 Members were present.

A matter of considerable importance to Licentiates in Dental Surgery, not only of the English College, but to other dentists possessing registrable qualifications, has during the collegiate year been under the consideration of the Council—viz., the use of misleading titles by unqualified registered dentists. The offending persons' names were entered on the Dentists Register with the description, "In practice before July 22nd, 1878." The persons in question adopted such titles and descriptions as "R.D.S., R.C.S. Eng.," "R.D.S. Eng.," "R.D.S.E.," and "Registered by the Royal College of Surgeons," thereby causing it to be inferred that they were connected with either the

English College or the Scotch or Irish College of Surgeons, and thus infringing the privileges of the Licentiates in Dental Surgery of those Colleges. The Council of the College having called the attention of the General Medical Council to the abuse, received a communication from that Council stating that the complaint against one of the persons thus advertising had been considered and that his name had been erased from the Dentists Register. It is hoped that this action of the General Medical Council will have the effect of protecting licentiates in dental surgery of this College and of the Scotch and Irish Colleges of Surgeons from the abuse of their privileges to which attention has been called. During the year the names of two Members have been erased from the College list for "disgraceful conduct in a professional respect."

Another matter of great importance, not only to the profession, but to the public at large, has engaged the attention of the Council—viz., the prevalence of venereal diseases. The Council, in pursuance of the action previously taken with respect to the movement initiated with the object of inducing Her Majesty's Government to institute some form of inquiry respecting the prevalence of venereal diseases in this country and the best means of counteracting the evil, have determined, at the instance of the leaders of the movement, again to urge Lord Salisbury to appoint a Departmental Committee for the purposes set forth in resolution No. 6 carried at the Brussels Conference—viz., Resolution 6 proposed by the British Medical Association and moved by Dr. R Saundby:—

> The conference requests the various Governments to constitute in each country a commission charged: (1) to determine the frequence of venereal diseases among the civil population apart from temporary variations; (2) to inquire into the institutions actually in existence for the treatment of venereal diseases, the distribution of hospitals, the number of beds available in different places, and to propose the most efficacious measures for the treatment of these diseases; and (3) to collect opinions as to the best means for preventing and limiting the spread of venereal diseases among the civil population and to formulate conclusions upon the subject.

During the year the experimental and chemical departments of the laboratories of the two Colleges have been completely re-organised. By the provision of a considerable quantity of apparatus these departments are now well equipped for the carrying out of any research work. The preparation of serum for the treatment of cases of diphtheria in the hospitals of the Metropolitan Asylums Board has been continued during the year. The method of preparation employed is the same as in previous years. The mixed serum now issued to the hospitals averages 300 units per cubic centimetre. The amount required has considerably increased and necessitated an increase in the number of animals under treatment. For the year ending June 5th, 1900, 10,999 doses, each containing 4000 units, 24,408 doses, each containing 3000 units, and 725 doses, each containing 2000 units, have been supplied. During the year a grant of £100 has been voted by the Laboratories Committee to Mr. W. P. Bloxam, B.Sc., for his work upon the "Chemistry of Antitoxic Bodies." A grant of £25 was also voted to the director for expenses incurred in his work upon the same subject. The Goldsmiths' Company's research grant has also been utilised in supplying antitoxic serum to various general and children's hospitals. In this manner 180 doses of 4000 units each, 314 of 3000 units each, and 1622 of 2000 units each have been distributed.

With regard to the museum of the College in the department of pathology, descriptions of the preparations added to the pathological series during the past year have been drawn up, and the fourteenth appendix to the general catalogue of the pathological museum has been prepared. Amongst the additions may be more particularly noted the following:—An entire gracilis muscle removed for angeioma. A sarcoma of the orbit in a fœtus. The lower part of a femur fractured by a Mauser bullet (South Africa). The humerus and scapula from a case of amputation for gunshot fracture (South Africa). A series of rifle-bullets from the seat of war (South Africa). Four specimens of gunshot fracture of the skull. The end of an iron railing extracted from the upper jaw. Synostosis of the lower jaw on one side after an unusual degree of destruction of the neck and ramus. Mis-shapen tusk of an African elephant. Actinomycotic cyst from the jaw of a horse. An excised pharyngeal pouch. A large collection of foreign bodies removed from a girl's stomach. Submucous lipoma from the colon. Urine from a case of myelopathic albumosuria. Two specimens of carcinoma of the bladder removed by partial cystectomy. A large series of calculi removed by litholapaxy, from infants and young adults. Surgical instruments from Borneo and New Guinea. Terra-cotta votive offering, ancient Italian.

In the department of Human and Comparative Anatomy the twelve sets of steps ordered by the Museum Committee have been made by the carpenter and are now in the galleries of the museum; they will greatly facilitate the study of the specimens on the upper shelves. The casts of prehistoric crania, &c., presented by Mr. N. C. Macnamara, have been supplemented by duplicates that enable them to be shown from two aspects. These casts, together with other specimens derived from the anthropological series, have been placed at the commencement of that series, and a special description has been drawn up by Mr. Macnamara and printed. This will be inserted in the catalogue. The first volume of the second edition of the descriptive and illustrated catalogue of the Physiological Series is now completed and ready for distribution. It contains the descriptions of over 600 specimens, of which a large number are new to the collection, illustrating the endoskeleton, flexible bonds of union and support, vertebral column, joints, and the muscular and allied systems. There have been 204 additions to this department. Of these special mention may be made of the cast of the skull of a giant bird Phororrhacus longissimus and of Archæopteryx siemensi; ear-bones of Grypotherium; muscle of Elephant showing elastic tissue; leaves of Mimosa in diurnal and nocturnal positions. 19 preparations of joints, 27 of muscles, and 10 of the nervous system have been added to the collection. A magnificent specimen of the skull and horns of the rare and almost extinct Rhinoceros simus in the collection had the horns placed in a wrong position, being too vertical, the front horn naturally being at about right angles to the downward sloping tips of the nasal bones. The true position was fortunately determined by Mr. Graham who obtained a skull from which the horns had never been detached. The skull was accompanied by an interesting letter dated Nov. 20th, 1821, suggesting the purchase of the skull by the Royal College of Surgeons. The horns of the specimen have now been placed in the true position.

In reference to the library, during the past year the supply of new books and journals has been fully kept up. The donations to the library during the twelvemonth include sets of their own works, presented on the occasion of their appointment as Honorary Fellows of the College, from Dr. E. Albert, Dr. Antonino d'Antona, Dr. Cardenal, Dr. Lannelongue, Dr. Ollier, Dr. Rubio y Gali, and Dr. Tillaux; a photograph of Sir William Lawrence, Bart. (enlarged from one by Frank Hollyer), from Miss Lawrence; "Medicorum Philosophorumque Icones," 4to. Amsterdam, 1612, and two volumes of tracts from Mr. J. Tweedy; a memoir and volumes of the works of Henry Jacob Bigelow from Dr. William Sturgis Bigelow; and a MS. notebook of Curator Clift containing notes on John Hunter's household and museum, and his handwriting, from Mr. C. Davies Sherborn. The collection of medical portraits has been constantly added to during the year and the library is indebted to Mr. S. M. Quennell, of the Westminster Hospital, for an interesting collection of anatomical drawings presented by him. The librarian's "List of Lecturers and Lectures at the Royal College of Surgeons of England, 1810-1900," has been published, as also his "Catalogue of the Collection of Portraits and Relics mainly illustrative of the History of the College and its Former Presidents," exhibited in the library on July 25th-27th. The new catalogue continues to receive entries. The inflow of volumes into the library is estimated at about 1000 per annum and the question of providing room for new books begins to press. At the present rate of increase the library will be congested in about two years' time. During the past year the library has been open on 276 days and the number of readers has been 6925.

MUNICIPAL HONOURS AND MEDICAL MEN.

THE following medical men have been elected or re-elected to the mayoral chair of their respective boroughs.

Greenwich.—Of the mayors of the new London boroughs one is a medical man—namely, Mr. Ralph Gooding, J.P., B.A., M.D. Lond., who has been elected mayor of Greenwich. Dr. Gooding is descended from the Goodings and Ralphs of Suffolk and was born at Ipswich in 1842. After

receiving his preliminary education in his native town he came to London and entered King's College. Here he gained many distinctions and prizes. Subsequently he was elected an Associate of the College. In 1866 he married a daughter of the late Lieutenant-Colonel W. Simonds and settled in practice at Blackheath. In 1893 he was as a Mason a Senior Grand Deacon of England. Dr. Gooding was until recently the senior member for Greenwich on the London County Council (1895 to 1898) and was vice-chairman of the Public Control Committee. He was the only coöpted poor-law guardian in the Greenwich district; was a late trustee of Roan's Charity; and was parish warden of Greenwich (1893 and 1894) and chairman of the Board of Governors and Directors of Poor (1893 and 1894). He was also a late commissioner of public baths and wash-houses (1893 to 1894), a commissioner of taxes for Blackheath division, and a member of the Greenwich Vestry and the Greenwich District Board of Works (1892 to 1894) and consulting surgeon to the Railway Passengers' Assurance Company.

Barnsley.—Mr. J. Fletcher Horne, M.D. St. And., F.R.C.S. Edin., F.R.S.E., is a justice of the peace for the Borough of Barnsley. Born at Barnsley, he was educated at the Leeds Grammar School, and later entered as a student at the Leeds School of Medicine, and qualified in 1874. He afterwards held the post of assistant medical officer at the Leeds General Infirmary. He commenced practice at Barnsley in 1876. He is senior surgeon to the Beckett Hospital and medical referee under the Workmen's Compensation Act for the district. In 1888 he won a seat on the school board, and in 1891 successfully competed for a seat on the town council which he still holds, and which has not been contested since. He was elected mayor on Nov. 9th by a unanimous vote. Dr. Horne has found time to dabble in literature. He has written a book on "Trephining in its Ancient and Modern Aspects (1894), whilst "The Mirage of Two Buried Cities," a beautiful and fascinating book dealing with the artistic and other remains of Herculaneum and Pompeii, was favourably reviewed in THE LANCET of March 17th of this year.

Dewsbury.—Mr. Robert Beattie (re-elected), M.D., M.Ch. R.U.I., after qualifying in 1876 went to Northleach, Gloucestershire, for a couple of years to assist Dr. Webb and was also assistant medical officer to the workhouse there. He was then at the Loughborough Infirmary and Dispensary as house surgeon for over two years. After this he entered on private practice in Canterbury, but only remained there a year or two. Over 15 years ago he went to Dewsbury. The sanitation and water-supply of that town have engaged his attention for many years and four years ago he entered the town council. Five years ago he was appointed medical officer of health to the Soothill Upper District Council and about the same time he was appointed honorary surgeon to the Dewsbury and District Infirmary. Quite recently he has been elected alderman and chairman of the Watch Committee.

Harrogate.—Mr. J. A. Myrtle (re-elected), M.D. Edin., J.P., late consulting physician to the Harrogate Bath Hospital, joined the town council three years ago, since which time he has advocated the purchase of the spa grounds at Harlow Moore and identified himself with other progressive municipal movements such as the extension of the electric lighting works.

Launceston.—Mr. W. Andrew, M.B., C.M. Edin., has been in practice since 1873 and has been a member of the town council for 22 years. He was elected mayor in 1885–86 and has been alderman for the borough and justice of the peace for 12 years.

Lostwithiel.—Mr. Robert Barclay-Allardice (re-elected) was born at Hamilton, Canada, and lived in the United States from 1850 to 1869. He the holds American degrees of M.A. and M.D. In 1898 he was elected a town councillor without cpposition.

Ruthin.—Mr. J. Medwyn Hughes, M.B., C.M. Edin., has been appointed Mayor of Ruthin for the fifth time. He is an alderman and has been on the council for 12 years. He graduated M.B., C.M. Edin. in 1886, and has been in practice for 14 years. He was medical officer of health for Ruthin District for seven years, and he now fills the offices of union medical officer and public vaccinator. He has always taken an active interest in educational matters, both local and county.

Winchelsea.—Mr. John R. Skinner, M.B., C.M. Aberd., who has been in practice in the town for some nine years, was elected mayor of the Unreformed Borough on last Easter Monday.

CELEBRATION OF THE FOURTH ANNIVERSARY OF THE "LOCOMOTIVES ON HIGHWAYS" ACT.

UNDER the auspices of the Automobile Club of Great Britain and Ireland and in commemoration of the inauguration of the above Act (1896) a very successful tour was made on Nov. 10th in magnificent weather from London to Southsea, a distance of about 80 miles. The start was arranged to take place from the Horse Guards-avenue, Whitehall, at 9.30 A.M., and the motor-cars were timed to arrive at Portsmouth about five o'clock. Allowing for an interval for lunch at Godalming of three-quarters of an hour the time allowed for the whole distance of 80 miles was thus six hours and three-quarters. This gives an average speed of 12 miles an hour. Of course, the actual speed attained sometimes exceeded this and sometimes it fell short of it. The ascent of the Hindhead was a feature of the tour, and there were some remarkable accomplishments up this famous "rise." The arrangements throughout were admirable and upwards of 100 motor-cars reached their destination without any serious breakdown and in less than the time allotted. The complete success of the "meet" was due in a large measure to the excellent injunctions drawn up by the committee and to the observance of them by the drivers in regard to certain precautions to be taken on the road. According to the rules of the club the speed of the motors was carefully to be moderated to eight miles an hour in passing through all the towns and villages, and within the villages passing on the off side at a speed exceeding eight miles an hour was prohibited. The drivers were also requested to observe every caution in turning corners and in passing through towns and villages, and "to show every consideration for other users of the road, especially those in charge of restive horses. ..... The tour is in no sense a race, and as it is desired by its means to popularise motor vehicles drivers are besought to avoid driving at unlawful speeds." Again, it was enjoined that if any motors were used on Sunday drivers should sound motor horns as little as possible when passing places of worship during hours of service. We repeat that the strict observance of these excellent injunctions accounted for the complete success of the tour. It is the contravention of rules of this desirable kind that has brought motor-cars into a certain discredit, a discredit which need never have been incurred. Some amount of prejudice is bound to remain, but even this is giving way and on the occasion of this tour it was interesting and satisfactory to notice that here and there timid horses were brought out by coachmen and grooms to face the procession in order to accustom them to the horseless vehicles.

The greater number of the cars participating in the Southsea tour derived their motive power from petroleum spirit; a few were driven by electricity and a fair number by steam. Some improvement is undoubtedly being made in the direction of diminishing the noise and vibration of motor vehicles. Although most of the petroleum-driven motor cars are still noisy, yet earnest attempts have evidently been made to remove this reproach as well as the objectionable smell arising from the escape of unburnt oil. To some extent progress has been made in these important respects, but the steam-driven car must be given the palm, we think, in regard both to noise and smell. The steam motor car is as noiseless as a self-propelled vehicle can well be, while it is free from objectionable oily fumes. There is, however, a small escape of exhaust steam which doubtless with care could be avoided. The reduction in the number of cogs and chains in favour of cranks and rods would appear to give the steam motor car an advantage in respect of noise. Our impression, however, was that the oil-driven car required the least attention in the way of repairs or adjustment. It is a remarkable fact that three or four gallons of petroleum spirit are sufficient to take four persons in a six-horse power car a distance of 80 miles. Reckoning the cost of petroleum spirit at 10*d.* a gallon this would come out at about 9*d.* a head for the trip, or less than one-eighth of a penny per head per mile.

Public interest in the motor car does not subside, and it is probably only the great initial expense connected with it which militates against its becoming rapidly a universal

means of travel. The arrival of the cars at Portsmouth was heralded by a great and enthusiastic crowd of people. The vehicles filed in single order past the Townhall at a slow speed to enable the Mayor and his colleagues, who stood in a group at the foot of the steps, to inspect the vehicles. A prize was awarded for that car which was deemed to be in the best condition after the run. So-called "non-stop" diplomas were also awarded to those who completed the journey without a break, excepting, of course, the interval for luncheon. These awards should be instructive in demonstrating the liabilities of a motor car to irregularities, break-downs, or detention from other causes incidental to a long run.

THE WAR IN SOUTH AFRICA.

IMPERIAL YEOMANRY HOSPITALS.

A GENERAL meeting of the committee of the Imperial Yeomanry Hospitals Fund was held at 20, Curzon-street, on Nov. 8th, with the object of considering the question of prolonging the period during which the Yeomanry hospitals would remain in South Africa. The Countess Howe presided and reported having received a letter from Lord Lansdowne, the Secretary of State for War, in which his lordship mentioned that Lord Roberts had expressed a strong desire that these hospitals should continue their valuable services until the return of the Yeomanry to England. The report of the treasurer on the question of finance having been considered the committee assented to this request. Friends and relatives of the members of the hospital staffs cannot, under these circumstances, hope to see them home at present. It has, however, been found possible, in consequence of the diminution of serious surgical cases at Deelfontein, to dispense with the services of a few of the members of that staff, some of whom have already returned and others are *en route*, whilst a small percentage of the staffs of each of the branch hospitals have been invalided home.

Lady Howe subsequently read a letter which she had received from Lady Roberts speaking in the highest possible terms of the work which is being done by the Yeomanry hospitals. Amongst other things, Lady Roberts wrote:—

> It has been a grand piece of work, and you, the committee and the generous subscribers to the Yeomanry Hospital Fund, have earned the deep gratitude of all who have the welfare of soldiers at heart, be they Yeomen or regulars. ..... The Imperial Yeomanry Hospital at Deelfontein has done splendid work. ..... Since the Imperial Yeomenry Branch Hospital has been established here [Pretoria] all Yeomen who have been wounded or fallen sick near Pretoria, or who have been brought in by train, have been taken straight there, though there are still a few in other hospitals who had been taken to them before their own hospital was opened, and to whom it would have been a danger, or caused suffering, to be moved. I think you and the subscribers may rest assured that as far as circumstances and the well-being of the patients would admit, the Imperial Yeomanry hospitals have been devoted to the service of the Yeomen.

Lady Howe also read to the committee a communication which she had received from Colonel A. T. Sloggett, R.A.M.C., enclosing a letter written to him by the resident magistrate at Richmond, S.A. This letter gave much satisfaction to the committee, as it proved that besides the good work which the hospital had been able to accomplish from a medical point of view the effect on the farmers in the surrounding district had been beneficial politically, and had produced a better feeling in the locality. The letter ran as follows:—

> SIR,—As there appears to be every probability of the Imperial Yeomanry Hospital at Deelfontein being shortly sent back to England, I take this opportunity, as civil commissioner and resident magistrate of the district of Richmond, in which Deelfontein is situated, to express to you that in my opinion the establishment of the Imperial Yeomanry Hospital in this district has had a most beneficial effect upon the inhabitants in the neighbourhood. All the farmers resident about Deelfontein are Dutch, and for some little time after the hospital was opened they kept aloof, but I did all in my power to persuade them to visit the hospital, and am very glad to say that a very large number have done so, and one and all have nothing but praise and good words to say about their visit. They have always been received by you and your officers with every possible courtesy and have been entertained and shown round the hospital in a most friendly spirit, and many of the Dutch farmers who for a long time held aloof regret not having sooner paid you a visit. The courtesy and friendly manner in which they have all been received has had a most excellent effect upon the farmers, and I am of opinion if more opportunities could be found for our Dutch farmers to meet Englishmen in the same friendly spirit that they have been received at Deelfontein, it would materially assist in establishing a better feeling between the Dutch and English in South Africa than exists at present.—I have the honour to be, Sir, your obedient servant,
>
> GEORGE J. BOYES, Resident Magistrate.

It will be interesting to subscribers to know that up to the middle of October, the date of the last weekly reports received from the different principal medical officers, about 7000 sick and wounded had been successfully treated in these hospitals.

THE IMPERIAL YEOMANRY FIELD HOSPITAL AND BEARER COMPANY.

BY CHARLES STONHAM, F.R.C.S. ENG.,

CHIEF SURGEON AND OFFICER COMMANDING THE IMPERIAL YEOMANRY FIELD HOSPITAL; SENIOR SURGEON, WESTMINSTER HOSPITAL, ETC.

In my letter from Barberton[1] I gave you a short outline of our marches and work up to the time of our return to Pretoria from Springs on July 17th. In this letter I propose to take you with us in our march to Balmoral back to Pretoria, and thence westwards to Rustenburg to the relief of General Baden-Powell, and to bring you back to Pretoria again, and my next letter will carry you over the mountains to Barberton and, I hope, back with us to Pretoria.

On July 17th, early in the morning, we entered Pretoria, sending our convoy to our old camping ground at Arcadia, and Major G. E. Hale, D.S.O., R.A.M.C., and I went to report to the principal medical officer and to obtain further orders. It was decided that we should leave a detachment of the field hospital and bearer company with some of our transport animals and wagons at Pretoria, while the main body marched to rejoin General Mahon's brigade. We accordingly left Mr. Openshaw and Dr. Purves Stewart with 50 men, five wagons, and the necessary equipment and stores for the formation of a rest camp hospital, and the next morning we marched with the remainder to find General Mahon. We came up with him in the afternoon at Kameelsdrift. There had been two days' fighting here and we did not leave the ridge until the 20th, on which day we passed Pretorius's farm and spent nearly all day in crossing the Pienaars river. The drift was very steep and hence the wagons, and especially the heavy guns, required many teams to drag them over.

These drifts are passages of the usually rocky beds of rivers, with comparatively little water at this season of the year. During the rains there may be as much as 40 or 50 feet of water at the drifts, which are then consequently impassable. Many drifts have very steep banks and abominable approaches, which, when a few wagons have passed over, are often a foot deep in mud and slush, in which carts sometimes stick and it becomes necessary to employ double, or even treble, spans of mules or oxen to pull them out. I need hardly say that the passage of such drifts by ambulance wagons causes very considerable suffering to sick and wounded men, and delay to the whole convoy which may extend for many miles. On some days we have had to pass as many as half a dozen drifts, our march being consequently slow and most arduous, not to mention the wear and tear to transport animals. Drifts are a very severe test of the strength and durability of a wagon, and in this respect we certainly have much reason to thank the builder of our wagons. They are most excellent and they have stood the wear and tear admirably, and I think I may say that they are the best in the country. Our ambulance wagons are built differently to those in use in the army, which only carry two patients lying down, whereas ours will take four and are much lighter.

The following day at 8.30 A.M.—it is time after this digression to get on with our march—heavy firing was heard about 10 miles ahead of us, and it continued at intervals all day until we reached our camp, where we found that the Boers had been shelling Colonel Hickman's force near a spruit. Colonel Hickman with 800 men was camped here and on the next day he transferred our sick to his field hospital, which was going back to Pretoria. On the 22nd, General Mahon's brigade joined General Ian Hamilton's division at Rustfontein, where we remained the next day to give General Pole-Carew and General Clery time to march up on our right flank. Just before reaching camp at dusk I regret to say that one of our wagons came to grief in a hole, the native driver being killed and the wagon orderly receiving two very severe scalp-wounds.

On the 24th we camped at Bronkhorst Spruit, the enemy

[1] THE LANCET, Nov. 10th, 1900, p. 1378.

sniping our rear during the march. Here we found a large force (about 20,000), Lord Roberts and Lord Kitchener having come up in the morning. The next day General Hamilton's division, of which our brigade was now a part, marched for Balmoral, 17 miles distant, but we were not destined to reach there without mishap. The weather had been very threatening all day and rain began about 2 P.M. About three miles on the wrong side of Balmoral our convoy was brought to a halt at a drift in which a Cape cart and a 4·7 gun had stuck; the former, however, was the offender so far as our further progress was concerned. By this time it was pitch dark, the rain was coming down in a pitiless torrent, and the wind was icy cold. To proceed was impossible and we had to stay there the night. Three miles of convoy in our rear was in the same plight—no food and no shelter. Major Hale with characteristic energy walked on to Balmoral to report, and on coming back wet through he and I made the best of it in a Cape cart which I had fortunately commandeered at Rustfontein. To describe this night is beyond my powers, but when I say that we alone lost 12 mules and that I counted 195 dead animals within quite a short distance some idea may be formed as to its severity. Early in the morning we made ready to proceed, when we heard that an officer of the Argyll and Sutherland Highlanders had died in the night from exposure. We sent back a stretcher party and carried the body in with us to be buried by the regiment. We reached Balmoral at 10.30 A.M. and looked forward to a day's rest, but we were doomed to disappointment, as orders came at 11 o'clock for us to march at 12.30 back to Pretoria. Many guesses were made as to the reason for the division's return, and we thought that we were being done out of the final advance to Komati Poort and neighbouring district, but events proved that this was yet far distant, important work having to be done in the Rustenberg district before the final advance could be undertaken. Our return march was uneventful. We reached Pretoria on July 30th, and the division marched past Lord Roberts and a large crowd of people at 12 o'clock on its way to Daspoort, two miles to the west of the town. We sent all our sick, who were suffering chiefly from fever and intestinal trouble, to the detachment, and the next morning I went down and found that the detachment had been installed by the principal medical officer in a house which they were energetically preparing as a military hospital. This was taken over by the Royal Army Medical Corps, our officers and men being lent for the use of the hospital until we should require their services in the field. Unfortunately, our mules had been handed back to the transport, and hence we could not obtain fresh animals. This day was a very busy one in Pretoria as we were under orders to march the next morning.

On August 1st, General Mahon's brigade marched through Wonderboom Pass and then westwards on the Rustenburg road. Pilcher was on our right and the rest of General Hamilton's division were on the left, separated from us by the range of hills. At 8 A.M. fighting began and continued all day, our guns dislodging the Boers from a kop at Middlewater where we camped for the night. Two of our ambulances went out after the fighting and brought back five wounded men, all suffering from flesh wounds of the thighs and buttocks inflicted as they were lying down. We finished dressing these cases by 10 P.M. and sent one of our ambulance wagons with the wounded back to Pretoria on the next morning. The next day we marched forward, heavy firing proceeding all day from Hamilton's direction, but General Mahon's brigade did not come into action. In the evening we camped at Zilikatz Nek (or Nitrals Nek), where the Lincolns had been attacked some time before. The fighting to-day had been with a commando holding this pass and Hamilton had about 40 casualties which were dealt with by his own field hospitals.

The country we were now in was very pretty; certainly it might be called the garden of the Transvaal. The valley is bounded by considerable hills on either side and is very fertile and studded by prosperous farms which in many cases are well stocked. Oranges, lemons, and similar fruits grow in abundance and proved most acceptable, for the want of fresh vegetables and fruit is very severely felt after a time and these fruits are eagerly taken when a chance offers. On the 3rd our march was a very short one, as we had to cross the Crocodile river by a bad drift. We camped just on the other side of it opposite Commando Pass, but saw nothing of the enemy, although 20 prisoners were brought in from neighbouring farms. The next day we marched to Sterkstroom, and a runner came in from General Baden-Powell who was hemmed in at Rustenburg. The messenger brought a map made by the general indicating the various positions occupied by the Boers and their numbers. When we advanced on the 5th, however, the enemy were not to be found and we reached Rustenburg unopposed. The country on this side of Pretoria is naturally fortified, and if the Boers do not defend it it argues most strongly that they will not again stand. On the 6th Major Hale and I marched out with part of our ambulances to proceed towards Magata Pass, where the enemy were said to be in force, but we returned at night without having seen anything of them, although heavy gun firing was heard all day some miles distant, and it was feared that the Boers had captured one of our convoys coming up from Mafeking. The next day we marched back, as we thought, for Pretoria, having relieved Rustenburg, and General Baden-Powell marched with us. We carried in our wagons all the sick and wounded who were fit to leave the Rustenburg Hospital and we supplied the medical officer in charge of those who could not be moved with medical comforts from our own stores. On the 9th we passed over Commando Pass and camped at Groot Platz, from which place we sent a sick convoy to Pretoria. On the 11th we again proceeded westwards, passing through Heckpoort the next day and camping at Thorndale. On the 13th Major Hale and Dr. Green, with two ambulance wagons, went on with a flying column under General Mahon, the rest of us following with the remainder of the division. We came in touch with Lord Kitchener and Lord Methuen on August 15th. These generals were pursuing a commando under Christian de Wet who was making for Rustenburg to join Delarey. Mahon's column came back to our camp to-day.

On the 17th, having camped the night before five miles to the westward, we moved on to Olifant's Nek, half a battery and some infantry going on ahead with four of our ambulances under Major Hale. After some shelling the Boers were driven from the Nek and we proceeded on to Rustenburg. From this action we had only two wounded. The next morning we again left Rustenburg and marched towards the Crocodile river, near which, at Zwartkopjes (or Roodekopjes), General Mahon's brigade had a two days' action on August 19th and 20th with De Wet's commando. On the first day one of our wagons, together with an Australian ambulance, was taken by the Boers, but Major Hale rode back and represented the facts to the general who at once sent a medical officer from one of the Boer ambulances which was in our lines and which we had helped with drugs and medical comforts to interview the Boer commandant, with the result that the ambulance came in later in the afternoon and brought in some wounded. On the night of the 20th the Boers vacated their position and we went in pursuit as far as Warm Baths but failed to come up with them. This was on August 24th. On August 26th we left for Pretoria where we arrived on the 28th, to leave again, however, after one day's rest for our march to Barberton.

The Devil's Kantoor, Oct. 6th.

PROFESSOR CALMETTE ON ANTI-PLAGUE SERUM-THERAPY.

IN the course of the second Harben Lecture, delivered at the Examination Hall of the Royal Colleges of Physicians of London and Surgeons of England on Nov. 14th, Professor A. CALMETTE, Director of the Pasteur Institute at Lille, said that certain epidemics of plague had been remarkable for the fact that all the cases presented a primitive pneumonic form, the mode of entry having been, therefore, exclusively through the nose or mouth, while in others the infection had been produced by the skin, either following slight excoriations or bites of fleas, bugs, and other parasitical insects. During the epidemic in Portugal last year he observed with Salimbeni a case in which the infection was through a bug-bite. Hankin and Simond, in India, had cited several examples of individuals who had contracted plague from touching diseased or dead rats.

It was probable that the transmission of the plague to the

man was by fleas living on the rats. Experiment in the laboratory had shown how quickly a healthy rat would contract the plague if caged with a diseased rat which was infested with fleas, while a healthy rat remained healthy when shut up with one which was diseased but was free from fleas. Whatever the mode of entry of the virus, multiplication of the plague bacillus resulted first in the lymphatic channels and then in the blood. By experiments on animals in the laboratory it had been proved that even at a few hours after the infection plague bacilli were to be found in the blood and that in consequence these bacilli existed in immense quantities in all the organs. The effect of an injection of the serum should be to provoke rapid destruction of all the plague bacilli by phagocytosis. The slow absorption of the serum injected by the subcutaneous method hardly attained this end, particularly if the quantity of serum injected was not considerable. The result of this was that, the organism not being at once impregnated with the active substance, some of the bacilli escaped from the phagocytic action and those which escaped were submitted feebly to the action of the serum, became accustomed to it, and finally resisted its influence entirely. After a time of reaction more or less long, the duration of which depended on the quantity of microbes destroyed by the phagocytes which had undergone the action of the serum, the infection took its course and the serum was powerless to check it. These results were quite different if the serum instead of being introduced beneath the skin were injected as soon after the commencement of the disease as possible straight into the veins. When the plague bacillus was discovered in 1894, and the first cultures were received from Yersin in Europe, Professor Calmette and Professor Borrel tried by vaccinating animals to obtain a plague toxin and a serum as an antidote. Their first attempts to isolate the cultures in bouillon not being satisfactory they succeeded with great difficulty in obtaining toxins free from living microbes which would kill mice by a strong dose of 1·50 to the cubic centimetre. They vaccinated small animals in the laboratory—rabbits and guinea-pigs—by means of virulent cultures killed by exposure for one hour to 70° C. It being possible to strengthen the artificial immunity of animals by vaccinating them by means of repeated inoculations with virulent plague bacilli, experience showed that a serum could be obtained capable of anticipating the plague or arresting the infection and that mice showing extreme sensibility to the plague bacillus could easily be preserved by inoculating them 15 or 16 hours after the virus with a sufficient dose of serum from a vaccinated animal. These experiments showed that it was possible in this manner to arrest the plague in advanced stages in monkeys and rabbits. Almost immediately upon the introduction of the serum into the general circulation an intense phagocytosis of the plague bacilli was produced; in a few hours they were swallowed up in the leucocytic cells, and it was not long before they disappeared completely and the animal was cured. In the human being the healing process after the intravenous injection of serum was absolutely identical with this. The temperature dropped four or five hours after the injection; it rose again for eight or 12 hours after, and then finally dropped. This temporary rise following the injection corresponded with the period during which the plague bacilli disappeared from the circulation and were swallowed up by the leucocytes. It must be laid down that a medical man confronted with a case of plague must therefore immediately inject 20 cubic centimetres of anti-plague serum into a superficial vein. If the fever had not subsided completely after 24 hours, and if the diagnosis had been confirmed bacteriologically, the injection must be renewed. No one need be afraid of performing these intravenous injections if care were taken to inject gently and to introduce into the blood neither air-bubbles nor solid matter. For this reason no serum should be used except anti-plague serum preserved without the addition of any antiseptic substance and kept simply from deterioration by being heated for an hour three times a day at 58° C. If the serum contained suspended solid matter it must be carefully filtered through a piece of fine linen which had been previously boiled. The most convenient veins to choose for these intravenous injections were the superficial veins of the dorsal surface of the hand or the palmar surface of the wrist. The preventive injection should be made under the skin of the abdomen in a dose of 10 cubic centimetre. Incidental symptoms common to all horse serums were very transitory and not at all serious and were indeed exceptional with serums heated to 58°C.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 33 of the largest English towns 6485 births and 3755 deaths were registered during the week ending Nov. 10th. The annual rate of mortality in these towns, which had been 17·3 and 17·6 per 1000 in the two preceding weeks, declined again to 16·9 last week. In London the death-rate was 17·0 per 1000, while it averaged 16·8 in the 32 provincial towns. The lowest death-rates in these towns were 11·1 in Birkenhead, 11·8 in Norwich, 11·9 in Leicester, and 12·1 in Cardiff; the highest rates were 20·4 in Liverpool, 21·6 in Sunderland, 22·5 in Manchester, and 26·0 in Salford. The 3755 deaths in these towns included 356 which were referred to the principal zymotic diseases, against 485 and 425 in the two preceding weeks; of these, 88 resulted from diphtheria, 75 from diarrhœa, 70 from "fever" (principally enteric), 50 from measles, 43 from whooping-cough, and 30 from scarlet fever. No fatal cases of any of these diseases occurred last week in Huddersfield; in the other towns they caused the lowest death-rates in Croydon, Brighton, Cardiff, Oldham, and Halifax, and the highest rates in Wolverhampton, Blackburn, Sheffield, and Sunderland. The greatest mortality from measles occurred in Swansea; from whooping-cough in Derby; from "fever" in Portsmouth, Wolverhampton, and Derby; and from diarrhœa in Blackburn, Sunderland, and Gateshead. The mortality from scarlet fever showed no marked excess in any of the 33 towns. The 88 deaths from diphtheria included 35 in London, seven in West Ham, seven in Sheffield, five in Bristol, five in Leicester, and five in Liverpool. No fatal case of small-pox was registered last week in any of the 33 towns; and no small-pox patients were under treatment in the Metropolitan Asylums hospitals on Saturday last, Nov. 10th. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 2702, against numbers increasing from 1703 to 2619 on the 10 preceding Saturdays; 289 new cases were admitted during the week, against 327, 320, and 336 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had risen from 164 to 268 in the five preceding weeks, further rose last week to 307, but were 85 below the corrected average. The causes of 57, or 1·5 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Cardiff, Oldham, Newcastle, and eight other smaller towns; the largest proportions of uncertified deaths were registered in Bristol, Liverpool, Preston, Sheffield, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 19·6 per 1000 in each of the two preceding weeks, declined to 19·2 per 1000 in the week ending Nov. 10th, but was 2·3 above the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 14·0 in Aberdeen and 16·6 in Paisley to 20·3 in Glasgow and 24·2 in Dundee. The 594 deaths in these towns included 22 which were referred to whooping-cough, 17 to diarrhœa, seven to diphtheria, seven to "fever," five to measles, and four to scarlet fever. In all, 62 deaths resulted from these principal zymotic diseases, against 67 and 77 in the two preceding weeks. These 62 deaths were equal to an annual rate of 2·0 per 1000, which was 0·4 per 1000 above the mean rate last week from the same diseases in the 33 large English towns. The fatal cases of whooping-cough, which had increased from 13 to 18 in the four preceding weeks, further rose last week to 22, of which 16 occurred in Glasgow and four in Dundee. The deaths from diarrhœa, which had decreased from 53 to 24 in the five preceding weeks, further declined to 17 last week, and included nine in Glasgow and six in Dundee. The fatal cases of diphtheria, which had been six and seven in the two preceding weeks, were again seven last week, of which three were registered in Glasgow, two in Edinburgh, and two in Leith. The deaths referred to different forms of "fever," which had been four and 12 in the two preceding weeks, declined again to seven last week and included four in Glasgow. The fatal cases of measles, which had been two, four, and eight in the three preceding weeks, declined again last

week to five, of which three were recorded in Edinburgh and two in Aberdeen. The deaths from scarlet fever, which had been eight in each of the two preceding weeks, declined to four last week, and included three in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had increased from 98 to 148 in the five preceding weeks, further rose last week to 150, and showed an excess of 32 over the number in the corresponding period of last year. The causes of 24, or more than 4 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 20·0 and 21·9 per 1000 in the two preceding weeks, further rose to 22·5 per 1000 during the week ending Nov. 10th. During the past four weeks the death-rate in the city has averaged 22·3 per 1000, the rate during the same period being 16 4 in London and 15·9 in Edinburgh. The 151 deaths belonging to Dublin registered during the week under notice were 4 in excess of the number in the preceding week, and included 11 which were referred to the principal zymotic diseases, against 12 and 13 in the two preceding weeks; of these, six resulted from diarrhœa, four from "fever," and one from whooping-cough. These 11 deaths were equal to an annual rate of 1·6 per 1000, the zymotic death-rate during the same period being 1·5 in London and 1·4 in Edinburgh. The fatal cases of diarrhœa, which had been nine, six, and five in the three preceding weeks, rose again to six last week. The deaths referred to different forms of "fever," which had been five, four, and three in the three preceding weeks, rose again last week to four. The mortality from whooping-cough showed a decline from that recorded in recent weeks. The 151 deaths in Dublin last week included 31 of infants under one year of age and 37 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons slightly exceeded the numbers in the preceding week. Six inquest cases and six deaths from violence were registered, and 49, or nearly one-third, of the deaths occurred in public institutions. The causes of 12, or nearly 8 per cent., of the deaths in the city last week were not certified.

VITAL STATISTICS OF LONDON DURING OCTOBER, 1900.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in each of the 43 sanitary areas of London. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 10·7 per 1000 of the population, estimated at 4,589,129 persons in the middle of the year. In the three preceding months the rates had been 7·0, 6·0, and 8·7 per 1000 respectively. The rates were considerably below the average in St George Hanover-square, Westminster, St. Martin-in-the-Fields, St. Luke, St. Olave Southwark, and Wandsworth; while they showed the largest excess in Fulham, Stoke Newington, Strand, Limehouse, Poplar, and St. George Southwark sanitary areas. One case of small-pox was notified last month in Islington, but not one in any other sanitary area; there were no new cases admitted into the Metropolitan Asylums hospitals last month, and only one small-pox patient remained under treatment on Saturday, Nov. 3rd. The prevalence of scarlet fever showed a large increase over that recorded in the preceding month; among the various sanitary areas this disease was proportionally most prevalent in Hammersmith, Fulham, Strand, City of London, St. George Southwark, and Lewisham (excluding Penge). The Metropolitan Asylums hospitals contained 2569 scarlet fever patients at the end of October, against 1804, 1657, and 1899 at the end of the three preceding months; the weekly admissions averaged 314, against 210, 152, and 255 in the three preceding months. The prevalence of diphtheria showed a considerable increase over that recorded in the preceding month; the greatest proportional prevalence of this disease occurred in Fulham, Hampstead, Stoke Newington, Poplar, Bermondsey, and Camberwell sanitary areas. There were 1458 diphtheria patients in the Metropolitan Asylums hospitals at the end of October, against 1256, 1171, and 1231 at the end of the three preceding months; the weekly admissions averaged 206, against 183, 142, and 185 in the three preceding months. The prevalence of enteric fever was slightly in excess of that recorded in the preceding month; among the various sanitary areas this disease was proportionally most prevalent in St. Martin-in-the-Fields, Limehouse, Poplar, St. Saviour Southwark, St. George Southwark, and Bermondsey. The number of enteric fever patients in the Metropolitan Asylums hospitals, which had been 129, 170, and 329 at the end of the three preceding months, had further risen to 444 at the end of October; the weekly admissions averaged 61, against 20, 32, and 69 in the three preceding months. Erysipelas was proportionally most prevalent in Holborn, Bethnal Green, Whitechapel, St. George-in-the-East, Limehouse, and Mile End Old Town sanitary areas. The 33 cases of puerperal fever included five in Islington, four in Mile End Old Town, three in Hackney, and three in Wandsworth sanitary areas.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various sanitary areas of the metropolis, the deaths occurring in the public institutions of London having been distributed among the various sanitary areas in which the patients had previously resided. During the five weeks ending Nov. 3rd the deaths of 6749 persons belonging to London were registered, equal to an annual rate of 15·3 per 1000, against 15·7, 19·4, and 16·5 per 1000 in the three preceding months. The lowest death-rates last month in the various sanitary areas were 8 8 in Stoke Newington, 9 6 in Hampstead, 11·6 in St. George Hanover-square, 11·7 in Paddington, 11·8 in Wandsworth, and 12·3 in Hammersmith and in St. Martin-in-the-Fields; the highest rates were 21·7 in St. George Southwark, 21·8 in Holborn, 22·1 in St. Luke, 22·3 in Limehouse, 23·2 in St. Saviour Southwark, and 24·3 in St. George-in-the-East. During the five weeks of October 763 deaths were referred to the principal zymotic diseases; of these, 53 resulted from measles, 47 from scarlet fever, 170 from diphtheria, 96 from whooping-cough, 95 from enteric fever, and 302 from diarrhœa. The lowest death-rates from these diseases last month occurred in Paddington, St. George Hanover-square, Westminster, St. James Westminster, St. Martin-in-the-Fields, Whitechapel, St. Olave Southwark, and Woolwich; and the highest rates in Fulham, Limehouse, Poplar, St. Saviour Southwark, St. George Southwark, Newington, and Bermondsey. The 53 deaths from measles showed a decline of 94 from the corrected average; this disease was proportionally most fatal in Clerkenwell, Shoreditch, Limehouse, St. Saviour Southwark, St. George Southwark, and Bermondsey sanitary areas. The 47 fatal cases of scarlet fever showed a decline of 55 from the average number in the corresponding periods of the 10 preceding years; the greatest proportional mortality from this disease occurred in St. Giles, Holborn, City of London, Limehouse, St. George Southwark, and Rotherhithe. The 170 deaths from diphtheria were 99 below the corrected average number; among the various sanitary areas this disease was proportionally most fatal in Fulham, Hampstead, Mile End Old Town, Poplar, Bermondsey, and Lee. The 96 fatal cases of whooping-cough were equal to the corrected average in the corresponding periods of the 10 preceding years; this disease showed the highest proportional fatality in Marylebone, St. Pancras, St. Giles, St. George-in-the-East, Limehouse, and Newington. The 95 deaths referred to enteric fever showed a decline of seven from the corrected average; among the various sanitary areas the death-rate from this disease was highest in Hammersmith, St. George Hanover-square, Hackney, Mile End Old Town, St. George Southwark, and Newington sanitary areas. The 302 fatal cases of diarrhœa were 84 above the average number in the corresponding periods of the 10 preceding years; this disease was proportionally most fatal in Bethnal Green, Limehouse, Poplar, St. Saviour Southwark, St. George Southwark, and Rotherhithe. In conclusion, it may be stated that the aggregate mortality from these principal zymotic diseases in London during October was nearly 18 per cent. below the average.

Infant mortality in London last month, measured by the proportion of deaths of children under one year of age to registered births, was equal to 148 per 1000. The lowest rates of infant mortality were recorded in Paddington, Hammersmith, Marylebone, Stoke Newington, St. Olave Southwark, and Plumstead; and the highest rates in Strand, Bethnal Green, St. George-in-the-East, Limehouse, St. Saviour Southwark, and Lee sanitary areas.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING OCTOBER, 1900.

(Specially compiled for THE LANCET.)

SANITARY AREAS.	Estimated population in the middle of 1900.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.													
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever	Diphtheria.†	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
LONDON	**4,589,129**	**1**	**1963**	**1426**	**1**	**661**	**12**	**33**	**582**	**—**	**4699**	**10·7**	**—**	**53**	**47**	**170**	**96**	**—**	**95**	**—**	**302**	**763**	**1·7**	**6749**	**15·3**	**148**
West Districts.																										
Paddington	130,104	—	44	24	—	6	—	—	10	—	84	6·7	—	—	—	—	2	—	3	—	2	7	0·6	146	11·7	107
Kensington	173,103	—	41	39	—	15	1	2	14	—	112	6·7	—	—	—	4	3	—	3	—	13	23	1·4	224	13·5	166
Hammersmith	110,203	—	67	35	—	21	—	—	10	—	133	12·6	—	—	1	5	—	—	6	—	7	19	1·8	130	12·3	93
Fulham	136,383	—	92	141	—	5	—	1	19	—	258	19·9	—	1	3	15	4	—	—	—	11	34	2·6	210	16·2	147
Chelsea	96,715	—	28	18	—	14	1	2	6	—	69	7·4	—	1	1	—	1	—	3	—	9	15	1·6	140	15·1	147
St. George Hanover-square	81,133	—	15	7	—	8	—	—	8	—	38	4·9	—	—	—	2	—	—	3	—	3	8	1·0	90	11·6	121
Westminster	51,657	—	11	11	—	4	—	—	5	—	31	6·3	—	—	—	—	—	—	—	—	4	4	0·8	74	14·9	136
St. James Westminster	21,457	—	6	3	—	4	—	—	2	—	15	7·3	—	—	—	—	—	—	1	—	—	1	0·5	28	13·6	176
North Districts.																										
Marylebone	139,777	—	62	26	—	11	—	—	22	—	121	9·0	—	—	—	5	10	—	4	—	3	22	1·6	196	14·6	94
Hampstead	81,766	—	36	37	—	11	—	—	7	—	91	11·6	—	—	—	7	1	—	1	—	3	12	1·5	75	9·6	120
St. Pancras	245,651	—	117	74	—	44	—	1	30	—	266	11·3	—	4	2	3	10	—	6	—	19	44	1·9	374	15·9	157
Islington	351,541	1	166	84	—	37	1	5	42	—	335	9·9	—	—	2	14	12	—	3	—	20	51	1·5	451	13·4	134
Stoke Newington	35,718	—	13	31	—	2	—	—	3	—	49	14·3	—	—	—	3	1	—	—	—	1	5	1·5	30	8·8	98
Hackney	225,619	—	109	90	1	38	2	3	24	—	267	12·3	—	2	1	7	2	—	8	—	10	30	1·4	307	14·2	164
Central Districts.																										
St. Giles	36,870	—	21	10	—	7	—	1	4	—	43	12·2	—	1	3	—	2	—	—	—	2	8	2·3	61	17·3	129
St. Martin-in-the-Fields	11,895	—	3	1	—	3	—	—	—	—	7	6·2	—	—	—	—	—	—	—	—	1	1	0·9	14	12·3	143
Strand	22,748	—	28	6	—	1	—	—	2	—	37	17·0	—	—	—	—	—	—	1	—	2	3	1·4	32	14·7	184
Holborn	29,188	—	16	6	—	2	—	—	6	—	30	10·7	—	—	1	—	1	—	1	—	2	5	1·8	61	21·8	162
Clerkenwell	66,007	—	22	14	—	14	—	—	12	—	62	9·8	—	2	1	—	1	—	—	—	4	8	1·3	101	16·0	151
St. Luke	40,656	—	10	8	—	1	—	—	5	—	24	6·2	—	—	—	1	1	—	1	—	3	6	1·5	86	22·1	109
City of London	26,922	—	18	8	—	2	—	—	3	—	31	12·0	—	—	1	1	—	—	—	—	1	3	1·2	51	19·8	158
East Districts.																										
Shoreditch	120,641	—	36	31	—	21	—	1	18	—	107	9·2	—	4	1	6	—	—	3	—	9	23	2·0	209	18·1	159
Bethnal Green	128,831	—	46	41	—	23	—	2	28	—	140	11·3	—	2	—	7	—	—	1	—	15	25	2·0	223	18·1	185
Whitechapel	82,220	—	33	24	—	12	—	2	16	—	87	11·0	—	—	1	2	—	—	—	—	5	8	1·0	135	17·1	160
St. George-in-the-East	48,875	—	17	12	—	6	—	—	10	—	45	9·6	—	—	1	—	4	—	1	—	2	8	1·7	114	24·3	197
Limehouse	58,944	—	34	16	—	17	1†	—	19	—	87	15·4	—	5	2	3	3	—	1	—	9	23	4·1	126	22·3	199
Mile End Old Town	113,781	—	38	46	—	17	—	4	29	—	134	12·3	—	1	1	9	1	—	5	—	7	24	2·2	188	17·2	155
Poplar	170,968	—	89	98	—	39	—	—	25	—	249	15·2	—	2	3	13	4	—	4	—	16	42	2·6	347	21·2	174
South Districts.																										
St. Saviour Southwark	23,854	—	8	1	—	6	—	1	3	—	19	8·3	—	2	—	—	—	—	1	—	6	9	3·9	53	23·2	212
St. George Southwark	60,597	—	44	14	—	58	—	—	9	—	125	21·5	—	8	3	—	3	—	7	—	11	32	5·5	126	21·7	158
Newington	125,128	—	52	45	—	14	—	—	13	—	129	10·8	—	3	2	6	9	—	5	—	11	36	3·0	248	20·7	184
St. Olave Southwark	10,909	—	3	2	—	—	—	—	—	—	5	4·8	—	—	—	—	1	—	—	—	—	1	1·0	19	18·2	69
Bermondsey	85,920	—	32	40	—	23	—	1	5	—	101	12·3	—	4	—	7	2	—	1	—	8	22	2·7	171	20·8	162
Rotherhithe	41,246	—	10	9	—	9	—	1	8	—	37	9·4	—	—	1	—	—	—	1	—	5	7	1·8	57	14·4	183
Lambeth	312,152	—	112	54	—	49	1	1	35	—	252	8·4	—	1	3	4	5	—	8	—	16	37	1·2	457	15·3	151
Battersea	178,100	—	73	36	—	21	—	—	22	—	152	8·9	—	1	2	6	4	—	3	—	7	23	1·3	228	13·4	135
Wandsworth	217,004	—	59	37	—	11	1	3	23	—	134	6·4	—	1	4	5	1	—	1	—	13	25	1·2	246	11·8	131
Camberwell	268,457	—	144	110	—	37	3	—	27	—	321	12·5	—	1	3	20	6	—	4	—	14	48	1·9	331	12·9	127
Greenwich	184,582	—	94	59	—	24	—	2	27	—	206	11·6	—	3	3	6	1	—	1	—	13	27	1·5	272	15·4	164
Lewisham (excluding Penge)	93,548	—	71	24	—	8	—	—	9	—	112	12·5	—	2	—	4	—	—	2	—	7	15	1·7	121	13·5	119
Woolwich	41,600	—	15	12	—	8	—	—	6	—	41	10·3	—	1	—	—	—	—	—	—	3	4	1·0	55	13·8	146
Lee	40,722	—	15	17	—	—	—	—	4	—	36	9·2	—	1	—	4	1	—	—	—	2	8	2·0	56	14·3	218
Plumstead	65,568	—	23	23	—	5	1	—	8	—	70	11·1	—	—	1	1	—	—	2	—	3	7	1·1	86	13·7	77
Port of London	—	—	1	2	—	3	—	—	1	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including 14 cases of membranous croup

† Bubonic disease.

‡ Including deaths from membranous croup.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Surgeon R. L. Price to the *Vivid*. Civil Practitioner W. H. C. Davey to be Surgeon and Agent at Liverpool.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel H. J. Robbins, A.M.S. (retired), has handed over the medical charge of Station Hospital, &c., Golden Hill Fort to Civil Surgeon A. R. Walters, and assumed charge of the troops and Station Hospital at Parkhurst. Captain F. Dove has been granted an extension of leave to Feb. 2nd, 1901, for the recovery of his health.

VOLUNTEER CORPS.

Royal Engineers: 1st Devonshire and Somersetshire: The undermentioned officer resigns his commission:—Surgeon-Lieutenant H. P. V. Wiggin.

VOLUNTEER MEDICAL STAFF CORPS.

The Manchester Companies: Walter Whitehead to be Honorary Surgeon-Colonel on appointment as Honorary Commandant.

TRANSVAAL WAR NOTES.

Mr. Charles Baehler, general manager of the Ghézireh Palace and Shepheard's Hotels in Cairo, has placed gratuitously at the disposal of the Duke of Abercorn's Sick and Wounded Officers' Committee accommodation in these hotels for two married officers and their wives and for four single officers.

Major J. G. Black, R.A.M.C., reported to be dangerously ill at Newcastle from enteric fever, is improving. Lieutenant E. B. Knox, R.A.M.C., is dangerously ill at Pretoria.

The *Times* states that Surgeon-General Stephenson, R.A.M.C. Colonel T. J. Gallwey, R.A.M.C., and Major W. Babtie, R.A.M.C., V.C., are on their way home to England in the *Tantallon Castle*.

CAMP SANITATION IN SOUTH AFRICA.

The *Times* of Nov. 13th contains a very good and sensible letter from a regimental officer on "Camp Sanitation," which, if it contains nothing particularly new, has much that is practical and true, hitting off many points that are apt to be overlooked or insufficiently attended to in camps. The great difficulty in time of war does not, however, always arise so much from ignorance of the elementary principles of army hygiene on the part of those concerned as from the difficulty, and occasionally the impossibility, of applying them with sufficient promptitude to be of any use. It goes without saying that a position must be captured and occupied before any sanitary measures can be undertaken in regard to it, whereas the necessary steps would often have to be taken in advance to be of any real benefit. The incoming troops have to occupy a position as the enemy left it and to make the best they can of it. Moreover, the application of sanitary regulations takes time and labour, however promptly they may be set about. After a forced march, ending perhaps with a severe fight, there must of necessity be some confusion and a good deal of pressure and strain on all concerned—to say nothing of the deficiency or non-arrival of transport. When things have settled down the case is altogether different, of course, and it would be simply criminal to neglect the work of sanitation.

BOER EYESIGHT.

There will be nothing strange or new to ophthalmologists in General Sir Redvers Buller's remarks regarding the eyesight of the Boers. He says:

> Many of our men are city born, and England is not a very large country. We went out to a region where the principal number of our enemies were born in a very open country, a very large country, and it is not untrue to say that practically the vision, the ordinary sight, of our enemy was two miles at least further than the average sight of the English who were fighting against them. That is a matter of actual fact. An ordinary Dutchman or African can see a man coming towards him two miles before the man approaching can detect him.

If we recollect aright Lord Wolseley has also stated that when he was in South Africa he was impressed with the same fact, and we have heard it remarked that the Boers are not so much better shots as better judges of distance than our own soldiers. It is well known, and it can be easily accounted for, that savage or less civilised races living in the open air do not suffer from the imperfect vision resulting from defective accommodation of the eye which often obtains among more highly civilised and educated races whose vision has been accustomed and adapted to more and more limited ranges.

LORD LANSDOWNE'S LEAVE-TAKING OF THE WAR OFFICE.

The Secretary of State for War at the best of times holds a difficult post, and in time of war has a very thankless one. This has been especially the case with the Marquis of Lansdowne whose labours at the War Office have been unremitting and who has accomplished a great undertaking in sending out and supplying our large force in South Africa. He expressed his thanks in generous and graceful terms to the officials of his department in taking leave of them. He said that for the last 12 months the War Office has had to bear the burden of a great war which has necessitated efforts and preparations unprecedented in the history of the country, and he added that these efforts have not only been largely successful and highly creditable but that this credit is, he believed, accorded by all who have dispassionately reviewed the events of the past year.

THE WELSH HOSPITAL.

The following telegram from Lord Roberts, dated Nov. 6th, to the Director-General of the Army Medical Service, London, has been sent by the Secretary of State to the Secretary of the Welsh Hospital:—"Please convey to the committee of the Welsh Hospital my condolence and Surgeon-General Wilson's on the death of Professor Hughes, and express sympathy with his family in their loss.—ROBERTS."

A letter has also been sent from the War Office conveying to the committee of the hospital an expression of Lord Lansdowne's grateful thanks on behalf of Her Majesty's Government for their generosity in allowing the hospital to remain in South Africa for a further period of three months in response to the request of Lord Roberts.

MISS ROBERTS'S ILLNESS.

Our readers will sincerely join the public in sympathy with Lord and Lady Roberts in the illness of their daughter. Miss Roberts is suffering from an attack of enteric fever. It was a curious mistake that on its first announcement the attack was said to be a "mild" one, though the statement was accompanied by the remark that the temperature was 104° F.! We are glad to learn from Lord Roberts's telegram that his daughter is now much better, but enteric fever is a serious condition until it is quite past. We earnestly trust that the progress of the case may be such that no additional cause of anxiety may be added to that which Lord and Lady Roberts have to bear.

ROYAL NAVY MEDICAL HONOURS.

The following promotions have been made for service in China:—Staff Surgeon J. Lloyd Thomas to be Fleet Surgeon. Surgeons: Robley Henry John Browne and John Falconer Hall to be Staff Surgeons.

THE OPERATIONS IN CHINA.

Surgeon Steel, New South Wales contingent, died on Nov. 10th.

CHRISTMAS AND NEW YEAR GREETING CARDS.—The pleasurable sentiment attaching to the exchange of greetings at Yule-tide and the New Year—and on this occasion to mark the new century also—is again well met by the excellent and abundant productions of Messrs. Raphael Tuck and Sons, of Raphael House, Moorfields, E.C. The album of specimens forwarded to us this year is a worthy exponent of the high artistic merit associated with Messrs. Tuck's name and embraces cards and booklets in styles to commend them to all requirements, tastes, and pockets—not forgetting Young England, for whose boyish military enthusiasm infantry and cavalry are well represented.

DEFECTIVE DRAINS.—At the Newton Abbot (Devon) County Court on Nov. 9th a landlord sued a tenant for a quarter's rent of a dwelling-house. There was a counter claim for £50 damages for breach of agreement. Evidence showed that defendant signed a lease for three years, one clause of which set forth that the owner having put the house in good order, both inside and outside, the tenant would keep it in that condition for three years. It was shown that the defendant's children contracted diphtheria and that the drains of the house were bad. Judge Woodfall gave judgment for the defendant and also on the counter claim, awarding him £35.

Correspondence.

"Audi alteram partem."

OUR WIDOWS AND ORPHANS.

To the Editors of THE LANCET.

SIRS,—May I, as president of the Society for Relief of Widows and Orphans of Medical Men, venture to appeal to the younger members of our profession to avail themselves more largely than at present of the benefits of this society. We all hope, but unfortunately we do not all succeed, to provide liberally for those dependent on us, and if cut off early in life it must often happen that a medical man leaves his widow and orphans in very straitened circumstances if not in absolute want. Anyone who reads the touching appeals for votes for Epsom pensions and scholarships will confirm this.

The widow of a member of this society, who has no certain income exceeding altogether the yearly value of £80, is eligible to receive a grant not exceeding £50 per annum, and an additional grant for each child under 16 years of age; but the father must have been a member for three years immediately preceding his decease. Membership is confined to registered practitioners residing within 20 miles of Charing-cross at the time of their election, but there is no restriction as to subsequent residence, and we have lately accepted a widow whose husband died in Australia.

The subscription is two guineas annually for 25 years only or 30 guineas in one payment, but a member whose age at the time of his election does not exceed 30 years may become a life member on payment of 20 guineas, or if under 40 years of 25 guineas. The point I wish to urge upon those recently qualified is that, while still resident in London at their several hospitals, they can on payment of 20 guineas make a perfectly secure provision for a possible widow and orphans, and will at the same time aid those who may not be so fortunate as themselves.

The office of the society is at 11, Chandos-street, Cavendish-square, W.

I am, Sirs, yours obediently,

November, 1900. CHRISTOPHER HEATH.

"THE INACCURACY OF THE MEDICAL REGISTER."

To the Editors of THE LANCET.

SIRS,—If you purpose sending to the compilers of the Medical Register the list of names of deceased members retained in this year's issue the following list gives the names of five in this neighbourhood:—

John Fritz Beck, Milford, Co. Donegal.
Joseph Henderson, 2, Alexandra-terrace, Northland-road, Londonderry.
J. J. Quigley, Clonmany, Donegal.
Sir William Miller, 16, Pump-street, Londonderry.
Thomas Davis, 8, Crawford-square, Londonderry.

I am, Sirs, yours faithfully,

Londonderry, Nov. 9th, 1900. H. E. TAAFFE.

*** We have, of course, no intention of attempting to discharge the duty of the General Medical Council in respect of the Medical Register. But Mr. Taaffe's letter adds force to the view that no one who read our leading article of Oct. 27th, 1900, p. 1214, could fail to entertain—viz., that the Medical Register is dangerously inaccurate.—ED. L.

"THE ALLEGED EXISTENCE OF A 'FOURTH DISEASE.'"

To the Editors of THE LANCET.

SIRS,—I have read Dr. C. K. Millard's letter under the above heading in THE LANCET of Nov. 3rd (p. 1304) with great interest, and hope that brief notes of eight cases occurring in my practice in November, 1898, will prove of interest. I may preface my remarks by saying that the cases all occurred in a school of 120 boys whose ages ranged from nine to 14 years, and that earlier in the term (some 18 days previously) we had a sporadic case of scarlet fever which had been promptly isolated and had desquamated freely on the fourteenth day. On Nov. 21st (18 days after the solitary case of scarlet fever had been isolated) I saw the first two boys who complained of headache, sore-throat, and general malaise. The boys looked and felt ill, and I had them removed to our sanatorium for observation. These two cases were followed by the remaining cases within the next three days. I will select the case of the most typical as the features were common to all. This boy sickened on Nov. 23rd complaining of malaise and sore-throat. The patient looked ill and pale and on taking his temperature it was found to be 100° F. The throat was injected, especially the faucial arch, and the tonsils were swollen; the tongue was red and moist; his conjunctivæ were not injected, there was no coryza, and his pulse was quiet at 84. Deeming the case suspicious I had him removed to the sanatorium where I saw him next day. He was then about the same but had vomited during the night. On Nov. 26th he was worse, the throat was more painful, and the tonsils had follicular patches on them. There was a well-marked rash on the soft palate. The temperature was 101·4°. On his arms and chest was a small darkish-red punctiform rash exactly resembling that of scarlet fever. The lymphatic glands were not enlarged, and more especially I noted that the post-auricular glands were not enlarged as they usually are in rose rash. The following day he was better and the rash was fading, and the temperature was 100°. From that day he rapidly got well, and all his symptoms disappeared until he became convalescent on Nov. 27th. I quite expected him to peel, but although I kept him under close observation for another 14 days no sign of desquamation was visible and he returned to school on Dec. 11th. These cases appear to be exactly what Dr. Clement Dukes has described as "the fourth disease," and which he admits he diagnosed (as I did) as the scarlatinal variety of rose rash, the chief discrepancies between the two diseases being, so far as my cases are concerned, (*a*) the different colour of the rash, and (*b*) the fact that there was neither coryza nor any enlargement of the post-auricular glands—this latter symptom I have noted in 80 per cent. of the rose rash cases which I have treated.

The most striking difference between my cases and a typical scarlet fever was the fact that there was no desquamation at all. So far as I can tell the infection only lasted for a shortish period, certainly under 21 days, as all the boys returned to school on the eighteenth day and I had no further cases. The chief interest in this series of cases lies in the fact that here we had to deal with an outbreak of some disease which was neither rose rash nor scarlet fever, and the only rational explanation is that there is, indeed, a "fourth disease."

I am, Sirs, yours faithfully.

Bistree. R. LESLIE ROMER.

To the Editors of THE LANCET.

SIRS,—Will you allow me to state what I know of two of the cases which occurred at Rugby last March of the so-called "fourth disease"? Of the series reported by Dr. Dukes two were those of my own sons, and I saw them at Rugby on the third and sixth days respectively of their slight illnesses. Looking only at the fading eruptions and the desquamation then commencing (on the sixth day) in one of the cases, I was much disposed to regard them as cases of mild scarlet fever. Against this view were the facts that the boys were not ill at that date, that no pyrexia was present, that their tongues were not at all characteristic of scarlet fever, and that their posterior cervical glands were enlarged. The rashes had evidently been intense, and one of the two boys desquamated freely for six or seven weeks, more freely than I happen ever to have seen in a case of scarlet fever. Within a week of their first symptoms they were out of bed and shortly after this on a full diet. Both boys had had true rubella—one a year before and the other 11 years before. Carefully reviewing the cases after the first fortnight was over I could come to no other conclusion than that Dr. Dukes had very skilfully and courageously disentangled this group of cases from scarlet fever on the one hand and rubella on the other. The sequel was in accordance with this view, for the boys mixed freely, after due disinfection, with others after three weeks, and after five weeks with their young brother, aged three years, and no infection of others was known to take place. Negative evidence, unless very extensive, may not prove much, but this single experience, itself in keeping with

others of this series, suggests as likely one of the following alternatives: on the one hand, that these were cases of this mild "fourth disease"; and on the other, that they were cases of mild scarlet fever, but that on the latter supposition the duration of the infectiousness of scarlet fever is much shorter than is usually held to be the case. This is a view which seems to have struck a good many observers of scarlet fever.

May I add a few observations upon the infectiousness of rubella? We are told of this curious complaint, with its five or six names and its period of incubation varying from five to 21 days, that it is highly infectious. In regard to this point one may fairly ask how it can ever be proved that a complaint with such a range of incubation is infectious at all and is not rather connected with some seasonal change operating upon a group of persons similarly circumstanced. With all the evidence from large outbreaks this is obviously going too far, but I would submit that the limitations of the infectiousness of rubella are greater and more numerous than those of any known infectious disease. As a fact, until a small outbreak of rubella took place this year in this neighbourhood, I could only remember one case of this complaint which *appeared* to spread from one person to another in a family, and that is during some 20 years of general practice. This, again, is only negative evidence and not extensive, but such experiences demand some attention. I would suggest the following propositions as to the infectiousness of rubella. First, that the infectiousness is less than that of any known infectious disease. Secondly, that it is limited very much to young adults and schools, avoiding children and grown-up persons. Thirdly, that its infectiousness is limited by season. I am, Sirs, yours faithfully,

Blackheath, Nov. 14th, 1900. WALTER KIDD, M.D. Lond.

THE DIAZO-REACTION IN TYPHOID FEVER.

To the Editors of THE LANCET.

SIRS,—In an address delivered by Dr. James Barr on the Treatment of Typhoid Fever reported in THE LANCET of Sept. 29th, 1900 (p. 919), there occurs the following sentence: "As a very early test I prefer Ehrlich's diazo-reaction of the urine which, although present in some other febrile affections, is never so pronounced as in typhoid fever." If Dr. Barr will refer to the *Indian Medical Gazette* for June, 1893, he will find recorded some experiments which show that there are other diseases in which the "diazo" reaction is quite as well marked as in any case of typhoid fever. I am sorry I have not a spare copy of the paper to send you. I am, Sirs, yours faithfully,

J. H. TULL WALSH, Major I.M.S.

Berhampur, Bengal, Oct. 21st, 1900.

"THE SMOKE NUISANCE."

To the Editors of THE LANCET.

SIRS,—Once more I feel that I must trespass upon your valuable space on account of the statement made by the honorary treasurer of the Coal Smoke Abatement Society in your columns[1] that—

> The principal difficulty in the society instituting proceedings is that the society would have to prove in court a nuisance by the smoke, a not always easy thing to prove to the satisfaction of a magistrate, whereas if the vestry prosecutes it only has to prove that black smoke was emitted, which under Section 23 and 24 constitutes a nuisance.

I must again point out that under Section 23 the non-consumption of smoke is a specific offence and legal proceedings for penalties can only be instituted by the sanitary authority. The actual question of a nuisance does not arise under Section 23, but under Section 24 "..... sending forth black smoke in such quantity as to be a nuisance; shall be nuisances liable to be dealt with summarily under this Act"; therefore I fail to understand why the honorary treasurer of the Coal Smoke Abatement Society writes that a sanitary authority under Section 24 has not to prove that which a private individual has to prove when proceedings are taken by him under Section 12. I must also point out that where a chimney, not belonging to a private house, sends forth black smoke so as to be a nuisance, it is not necessary in proceedings to abate it to prove that the smoke is injurious to health (Gaskell *v.* Bayley 30 L.T. (N.S.) 516). Might I suggest to any person aggrieved through the emission of black smoke that snapshots be taken of the offending shaft to be produced in a court of summary jurisdiction?

I am, Sirs, yours faithfully,

FREDERICK WILLIAM ALEXANDER,
Medical Officer of Health, Poplar and Bromley.

Bow-road, Bow, E., Oct. 24th, 1900.

[1] THE LANCET, Oct. 20th, 1900, p. 1164.

SNOW BLINDNESS.

To the Editors of THE LANCET.

SIRS,—A friend of mine who spent his holiday this summer in Switzerland suffered whilst there from an attack of snow blindness. The first symptom which he noticed was the presence of a rainbow surrounding the candle in his bedroom. I shall be glad to know if this is a common or known symptom; and, further, I shall be obliged if any of your readers can inform me what is the optical explanation of similar rainbows in glaucoma.

I am, Sirs, yours faithfully,

Llandudno, Nov. 10th, 1900. EDWARD GOODDY.

*** The rainbow surrounding the flame of a candle in the case referred to by Mr. Gooddy was probably due to some disturbance of the epithelium of the cornea consequent upon exposure to cold and glare. These conditions are acknowledged by all travellers in the Arctic Regions to set up severe conjunctivitis. The Esquimaux use protectors made with narrow slits to minimise the effects of such exposure. The haloes observed as a subjective phenomenon in glaucoma are the results of similar conjunctival trouble proceeding from increased tension of the globe. A halo of the same kind is seen on looking at a flame through a glass that has been breathed upon or that is frosted on one side.—ED. L.

THE TEACHING OF ANÆSTHETICS.

To the Editors of THE LANCET.

SIRS,—Having been on the staff of a provincial hospital for nearly 20 years I have had many opportunities of observing the knowledge possessed by such recently qualified men as seek for hospital appointments. I have no hesitation in saying that the majority of them are imperfectly trained and some are lamentably ignorant in that important branch of their profession, the administration of anæsthetics. If the candidates for hospital appointments, who are generally above the average and as a rule only secure their appointments after severe competition, are deficient, the rank-and-file must be deplorably incompetent. I freely admit that I have met with notable exceptions, but I maintain that if the education was more thorough they would all be efficient, or at any rate they would not be so grossly ignorant as I have found them. For instance, I have seen men apply the facepiece of Clover's inhaler upside down. Others have commenced with the ether full on and others have admitted that they never saw the inhaler before. I have waited three-quarters of an hour while a man was endeavouring to place a patient under the influence of chloroform, and in the administration of gas I have generally had to act as instructor. Most of the men indulge in unlimited poking of their fingers into the poor patients' eyes and are generally fussy, nervous, and frightened. In a paper which I recently read before the Kidderminster Medical Society I drew attention to fright as a not unimportant element in producing a fatal termination, and I insisted upon the importance of re-assuring and obtaining the confidence of the patient at the outset. May I now add that the factor of fright on the part of the administrator is a two-fold danger, because in addition to rendering him inefficient it must react upon his patient?

I notice in your excellent article[1] that you attribute this lack of knowledge to a certain extent to the fact that the examining bodies do not demand any special training in this important subject. Your estimate is no doubt correct and the time has now arrived when the General Medical Council ought to take cognisance of the matter and insist upon a different state of affairs. To-day, almost every practitioner is called upon to give anæsthetics on frequent occasions, and his want of knowledge is not only a detriment

[1] THE LANCET, Oct. 27th, 1900, p. 1215.

to himself but extremely irritating to the surgeons employed and a source of much discomfort and grave danger to the patient. As a former anæsthetist at one of the largest London hospitals I have no hesitation in saying that there is ample material to give a thorough practical training to every individual student. Take the number of a year's students at St. Bartholomew's at 150, and the number of anæsthetics administered at 5000, it would certainly be a very easy matter for each student to administer 10 anæsthetics. (I should prefer 20.) My proposition is that the General Medical Council should insist that every practitioner should, before receiving his diploma, produce evidence that he has administered anæsthetics at least 20 times, including ether, gas, and chloroform, under proper supervision. There is a somewhat similar regulation with regard to confinements, so why omit the anæsthetics? There can be no question of increasing the burdens of the student. If he wishes to undertake the responsibility of administering anæsthetics surely he cannot complain if he is compelled to prove the possession of the necessary ability to do so. I hope, Sirs, the General Medical Council will give their early attention to the matter.

I am, Sirs, yours faithfully,

J. LIONEL STRETTON,
Senior Surgeon, Kidderminster Infirmary and Children's Hospital; formerly Assistant Anæsthetist, St. Bartholomew's Hospital.

THE ASSOCIATION OF PHYSICIANS AND SURGEONS (SOCIETY OF APOTHECARIES).

To the Editors of THE LANCET.

SIRS,—In answer to the further resolution of the Court of Assistants of the Society of Apothecaries the Association of Physicians and Surgeons (Society of Apothecaries) have replied, thanking the Society for the authorisation to their Licentiates of adding to their titles of "L.S.A. Lond." the words, "Physician and Surgeon," and the Association hope that in the near future a further alteration will be made in a still rather unsatisfactory title. Licentiates may now, on the authority of the resolution of Oct. 8th, 1900, style themselves "Licentiate Physician of the Society of Apothecaries and Licentiate Surgeon of the Society of Apothecaries, London" ("L P.S.A. and L S.S.A. Lond.").

I am, Sirs, yours faithfully,

GERALD DALTON,
Honorary Secretary of the Association of Physicians and Surgeons (Society of Apothecaries).

455, Strand, W.C., Nov. 12th, 1900.

HERNIA "SPECIALISTS."

To the Editors of THE LANCET.

SIRS,—I shall be obliged if any of your readers can furnish me with details of cases recently treated by Mr. S. J. Sherman, hernia specialist. I think it likely that he attended patients in Cardiff about June of this year, and in Preston about the beginning of September. All particulars which will assist in judging of the success or failure of Mr. Sherman's treatment will be valued.

I am, Sirs, yours faithfully,

HUGH WOODS.

Westbury, Hornsey-lane, London, N., Nov. 12th, 1900.

PUBLIC VACCINATORS.—At a meeting of the Council of the Association of Public Vaccinators held on Nov. 9th it was decided to take immediate steps to press in the new Government the claims of public vaccinators to be considered as officers and, to be eligible for superannuation, and, if necessary, to proceed by the introduction of a private Bill in the ensuing Parliament. As considerable expense will probably attend such an undertaking it was decided to make a special appeal to members of the association and to public vaccinators generally, so as to guarantee that the matter should not suffer for lack of funds. A letter was read from the National Poor Law Officers' Association promising its help in any such enterprise.

THE UNIVERSAL EXHIBITION OF PARIS.

(FROM OUR SPECIAL CORRESPONDENT.)

CONCLUDING NOTICE.

CLOSURE AND SUCCESS OF THE EXHIBITION.

AFTER the final illuminations, unprecedented in brilliancy, expanse, and grandeur, the great Universal Exhibition of 1900 has closed its doors. The best of things must end and this has certainly been the best and the most successful of Exhibitions. Where in the world's history has it ever been recorded that more than 600,000 persons came in the course of a day to contemplate an Exhibition, however large and attractive? There has been some talk of failure, originating among those who, for political reasons, were anxious to damage the Government actually in office; and there have been failures, but not of the Exhibition. The public, more especially the French public, has shown its good sense and its good taste by not patronising extensively certain side shows, but these do not constitute the Exhibition. On the other hand, such side shows as the History of Costume, the Palace of Light with its scientific exhibits, the Trans-Siberian railway, the Miorama with its life-like illusion of a Mediterranean cruise, and other panoramic displays were worthy of the Exhibition and were widely admired and patronised. Others of a lower order failed and deserved to fail. But these small side issues are inseparable from great exhibitions, for money must be raised in some way or another. It is true that the Exhibition bonds bearing 65,000,000 admission-tickets were readily sold for as many francs, but this, even when supplemented by subventions from the State and from the Paris municipality, did not suffice for such a vast undertaking. Therefore, concessions were sold to various speculators. Similar concessions were granted too cheaply for the Exhibition of 1889, and it is said that in the present case the charges made were too high. In any case there has been over-speculation, but the Exhibition cannot be held responsible for the miscalculations of individuals who wanted to run restaurants, side shows, or stalls for the sale of trinkets. Such establishments do not constitute an Exhibition, they are rather the parasites that hang on to a great national enterprise. Nor is it the fault of the management of the Exhibition if the restaurant keepers made such exorbitant charges and gave such poor food that a great number of visitors preferred to bring sandwiches with them or to take their meals at restaurants outside. But those wiser caterers, such as the owners of the Swiss Châlet near the Eiffel Tower, who gave simple, wholesome food and plenty of it at moderate charges must have made large fortunes, for the crowds of customers that patronised their establishments must have exceeded the wildest hopes that it was possible to entertain. So that it may be said that where success was merited it was achieved, and if some of the side shows failed this, in a measure, may be attributed to the fact that there was so much to be seen in what constituted the Exhibition proper that but little time remained to visit anything else.

Then, after all, in judging an Exhibition it is first of all necessary to consider what is its main purpose. Evidently this consists of gathering from all parts of the world exhibits that will illustrate the progress achieved in the domains of science, art, and industry, to which in this Exhibition have been added philanthropy and sociology. Now under all these headings there have never been before so many and such remarkable exhibits. The Palace of Social Economy and of the Congresses was a new and a remarkable feature. Here on the ground floor was shown what the leading nations of the world have done to raise the poorer sections of the community by organising self-help institutions, while on the upper floor vast assembly rooms were at the disposal of the 127 official International Congresses that were held. Thus was stimulated a righteous rivalry and emulation in the performing of good works. These endeavours cannot be ignored and will not be forgotten; they all contribute to the grateful memory that will long outlive the ephemeral life of the Exhibition itself. In the course of a few months weighty volumes will be distributed throughout the world recording what was said and done at these congresses. The report of the International Medical Congress will constitute a small

library of itself, and the account of the proceedings of other congresses will also fill several volumes. Thus knowledge will continue to spread throughout the world even after the Exhibition has ceased to exist. And what science has gained by this interchange of information and ideas other phases of human activity have likewise acquired. Then as men of all nationalities and of all pursuits have been brought together they have learnt to know and to esteem each other. This, surely, will make for progress and peace, thus tending to increase the sum total of human happiness. And foremost in such generous endeavours have stood the members of the medical profession. Their congresses have been the most numerously attended of all the congresses. In the pursuit of science more than in any other form of human activity have men of all nations sought to fraternise with each other. Racial and national antipathies arise from the ignorance that is born of isolation, but such an Exhibition as that just concluded brings the whole world together, removes prejudices, engenders mutual admiration and respect, and stimulates that which is good within us and tends to efface the bad. Because the progress resulting is universal and works along the whole line of human endeavour it is also specific, so that every word which I have written with regard to the general effect of the Exhibition applies equally to the special interests of the science of medicine and of sanitation. Then with regard to special national interests, I may say that, according to the opinion of the British Commissioners themselves, the space allotted to British exhibitors, if taken in comparison with that given to other foreign countries, was so extensive as to give no cause of complaint. Great Britain has been treated at least as well as any other country. Again, in regard to general courtesy this has been well maintained throughout. But what is more remarkable, for it is perhaps unprecedented, the Exhibition Commissioners of the various nations have always worked with great unanimity. There have been no unseemly rivalries, no squabbles or jealousies, no incivilities or estrangements, but throughout the utmost cordiality and friendliness have prevailed. Thus, in more respects than one, has the Exhibition constituted a great peace demonstration, as it has also been a triumphant manifestation of material progress and of higher moral aspirations.

THE FRENCH SANITARY SECTION.

In concluding sorrowfully these notices, and though the Exhibition doors are now closed, it may still be permissible to say a few words concerning some of the exhibits which have not yet been mentioned. It is of no use to state, for instance, that there was a beautiful model of the gathering grounds of the Vannes waters which constitute a large part of the Paris water-supply, for this model is now being removed, but mention may still be usefully made of improvements which are available for general use. Thus, for instance, the great glass-blowing firm of Apperts Brothers displayed in the French sanitary section an apparatus for blowing glass by machinery The injury due to blowing glass by the mouth is well known, as is also the risk of contamination among the workers as they pass the blowpipe from one to the other. It is encouraging to find that important firms are seeking to do away with these risks. Concerning the French Sanitary Section and sanitary apparatus generally it is regrettable that the jury has not done its work with the thoroughness which distinguished the jury of the sanitary section at the Universal Exhibition of 1889. Eleven years ago not only was a handsome structure built for the French sanitary exhibits on the Esplanade des Invalides, but what was of more practical importance, there was behind it a sort of shanty with ample water-supply and all the necessary appliances for thoroughly testing closets, flush-tanks, pipes, &c. There the closet-pans were tested with plumbers' ink, with paper, and with apples or potatoes, and notes were taken as to how far all these were removed by the 10-litre flush, which is a trifle more than our two-gallon flush. The hardware soil-pipes were tested first for their resistance to outward pressure and it was found that the weakest broke under a weight of 800 kilogrammes while the strongest required a weight of 2500 kilogrammes before they were crushed. Then the pipes were tested for internal pressure and while the weakest burst under a pressure of four atmospheres the strongest only yielded to six and a half atmospheres. The pipes were further tried for sudden blows or shock by dropping a weight upon them from different heights; the weakest broke when the iron ball fell from a height of 10 centimetres, the strongest when it fell from a height of 20 centimetres. Finally the pipes were tried for absorption. First they were dried for 12 hours in an oven, and were then immersed for 24 hours in a trough of water. The pipes selected measured 15 centimetres in diameter and 75 centimetres in length; the best pipes absorbed only 150 grammes of water, the worst a litre, or 1000 grammes. On the present occasion no such experiments have been made. The excuse given for this omission is that the pipes, &c., exhibited were all well known and had been fully tested at the Paris Municipal Sanitary Laboratory on many occasions since the last Exhibition. This undoubtedly is the case, and among the exhibits in the Pavilion of the Town of Paris there was a model of this laboratory showing the improved and elaborate methods of testing there employed. But such reasons, though doubtless satisfactory to the French members of the jury who have experience of these tests, were not likely to be as convincing to the members of the jury who belonged to other nationalities and who were therefore not so well acquainted with the work done by the Paris Municipal Sanitary Laboratory. Also it would have been interesting to have possessed a record of such experiments countersigned by the members of an international jury. Finally, there must have been at least a few foreign exhibits which have never been tested at the Paris laboratory.

PROGRESS IN DOMESTIC DRAINAGE.

In looking over the French sanitary exhibits, anyone who remembers the previous Exhibitions must be impressed by the progress accomplished. Formerly a really sanitary closet was the exception, now it is the rule. There are still some of the old-fashioned closets exhibited. This is but natural, for as yet the majority of houses, not only in Paris but throughout France, do not drain into the sewers but into cesspools or into moveable pails. Therefore the closets cannot be provided with an efficient flush, a trap cannot be placed under the pan, and at best there is but a valve which contains a very slight quantity of water. The insanitary contrivances are, however, destined to disappear, and though they are still exhibited the manufacturers likewise show that they can and do produce closets constructed according to the most recent principles. Also some of the French firms make what no English firm has attempted to produce—namely, a closet with a narrow wooden rest for the thighs so that the natural attitude and not the sitting posture is assumed. It is claimed that this is valuable, especially in cases of chronic constipation. For this purpose the firm of Seiller et Cie. exhibited a long and narrow pan, but slightly raised above the floor, and the attitude is that of attempting to sit straddle-legged over a saddle placed on the ground. This is one of the firms that make all their apparatus of enamelled iron; and, indeed, in walking round the section it was evident that there is quite a battle between the producers of hardware and of enamelled iron. In regard to iron, the French produce very remarkable soil-pipes and rain-water pipes. These are much thinner than similar pipes made in England and are easier to manipulate. Also, some of the French plumbing work is very noteworthy. Thus the Diderot Technical School shows five branch or junction pipes beaten out of one lead pipe. On the other hand, the Master Plumbers' Syndicate of the department of the Seine exhibit a full-sized model of a branch sewer. Here were placed the different delivery pipes for the spring drinking-water supply and the Seine supply for watering streets and flushing closets, together with the house-drains and the gas-supply pipes. All this involves a great deal of plumbing work and it must be said that the joints were not so carefully finished as is the general practice in England. Then M. Noël Chadapaux exhibited a new method of joining soil-pipes which cannot be recommended. Instead of constructing the soil-pipe with a socket at one end so that the next pipe may be fitted into it the pipe is a simple plain tube. An iron belt is fitted to the ends of the pipes and these ends are brought together by means of clamps which are screwed from the iron belt of the one pipe into that of the other pipe. These belts hold the pipes together firmly enough, but to render the joints water-tight a flange of india-rubber is placed between. In screwing the pipes tightly together the rubber naturally expands in a lateral direction, and when I passed my arm down inside I was able to feel a ridge of rubber that had been squeezed out into the interior of the pipe, thus forming a projection round the joint and

destroying its internal smoothness. Of course soil is likely to adhere to this ridge and augment its size, and thus to create an obstruction. On the other hand this firm has an excellent method of flushing. The tank, placed as usual above the closet, is air-tight and empty. The weight of a person standing by the pan of the closet opens a valve and admits the water into the tank. On the other hand, when the person leaves the closet another valve is opened automatically and the water discharges from the tank into the pan of the closet. As the air in the closed tank has been compressed by the water it forces the water out with great violence and thus it may not be necessary to employ so large a quantity. Finally, as the water is not stored in the tank there is less chance of its freezing in winter.

The Ceramic Company of Pouilly-sur-Saône are among the largest French producers of sanitary hardware, and they had a magnificent exhibit. Their bathroom with lavatory and closet won the Grand Prize. They apply Adam's method of utilising waste-water to fill automatic flush-tanks for house-drains. Thus the water thrown away only leaves the house when it has accumulated in sufficient volume to provide an efficient flush. They also make a great variety of stand-up closets where the water flushes the floor as well as the pan. The prevalent tone is that of a white enamel for pans, sinks, the floors, and even for the walls of closets. As these exhibits were all working models their good points could be more readily appreciated. The French section throughout faced the problem of the stand-up closet, of which a great variety was shown, and it is an open question whether this is not the best form of closet for places of public resort where cleanliness cannot be depended upon. In such closets there is no risk of dirty or dangerous contact, for even the soles of the boots are well protected by a raised stepping-slab to stand upon and the attitude that must be assumed is certainly more natural.

Portable Disinfecting Stoves.

There was also a great number of disinfecting stoves and the point of interest involved is the fact that probably half of the stoves were portable. It is curious that in England these stoves are not employed, yet it is self-evident that they would be of considerable use in rural districts. The sanitary authorities of villages or very small towns cannot afford to erect a disinfecting station. Besides, there would be but very little disinfecting for them to do. But three or four villages or rural sanitary authorities might join together to purchase one portable stove. With two horses this stove can be brought up to the door of the cottage or house where a case of infectious disease has taken place. The bedding and the clothes, &c., need not then be conveyed to a distant disinfecting station, but can be purified then and there in front of the house. Thus isolated cottages and farms can be reached and disinfection by steam under pressure can be carried out on the premises. The well-known Paris firm of J. Le Blanc has improved upon the older models of stoves. The steam is introduced on two sides, instead of on one side, of the stove; the compressed air has a special pipe for escape, instead of being let out at intervals as formerly. The safety valve lifts when the internal temperature exceeds 115° C., and the closing of the stove has been greatly simplified by a ball fitting into a cone. A handle twists the ball round and the more it is twisted the tighter the fit. This is a much better expedient than the old system of bolts and screws.

Mineral Waters.

A great deal more might be said about the French sanitary exhibits, but now that the Exhibition is over I have confined myself to one or two topics in which a comparison could be established with what is done in England and in connexion with which indications may be suggested that may lead to improvements. In the basement below the French Sanitary Section there were many stoves, furnaces, and other apparatus for warming houses and public buildings. On the floor above there were panoramic views of the principal mineral springs and hydropathic establishments of France, and in the centre there was a circular bar where visitors might drink any of these waters, either pure or mixed with various kinds of syrups. But all this is now past and gone and if I recall these attractive exhibits it is only to suggest that our English spas might do well to imitate this example. Instead of exhibiting uninteresting rows of bottles they might surround them with painted scenic effects setting forth the scenery and attractions of the various watering-places. A bottle and its label are hardly works of art, and when the bottle is known to contain nothing more inspiriting than a mineral water of dubious flavour it is not very attractive; but if these bottles have a background that can produce an optical illusion of mountains, casinos, and gardens the public is likely to take much greater interest in the exhibit. This is what the French exhibitors had the intelligence to do, and it is very probable that many an invalid has thus been tempted to try one of the establishments in question.

Conclusion.

And now I must quit this remarkable Exhibition. Its many treasures will be removed, its palaces will disappear, and will only remain engraven in the mind as the memory of a fairy dream. Yet all existed in earnest reality; it was no dream; it was a true and substantial manifestation of what the genius and industry of many nations have been able to accomplish. Though the Exhibition is no more its moral and material effects remain, stimulating inventions, promoting progress, and working for peace and a better understanding and a more intimate intercourse between the men of science, commerce, and industry of all nations.

Paris, Nov. 12th.

NOTES FROM INDIA.

(From our Special Correspondent.)

The Mortality and the Cost of the Famine.—Failures in Municipal Sanitary Improvements.—Continued Increase of Plague.

Though the numbers of people on famine relief are week by week rapidly diminishing there still remain 1,800,000 people to be provided for. It is anticipated, however, that in the course of the next month these people will return to their homes. It has been calculated that the loss to crops is £50,000,000 sterling, besides some millions' worth of cattle. The famine this year has affected many who had never known it before—certain Native States, the hill people, and the wandering tribes. The scale of almsgiving has been unprecedented, as up to the end of August the cost of the famine had been 85,400,000 rupees (over five and a half millions sterling). A further cost of 1,500,000 rupees is anticipated. Enormous sums have been advanced to cultivators and many lakhs of land revenue have been remitted, while about 350 lakhs have been lent to Native States. The mortality in some of the Native States has been terrible. It is estimated that half a million deaths in British India were fairly attributable to famine conditions, but Lord Curzon fearlessly challenged contradiction when he asserted that a famine had never occurred where the general mortality had been less distressing or more quickly relieved or where the officers had worked harder to save life. In some of the Native States the neglect of the durbars demanded strong interference. The relief committees have received nearly £1,000,000 sterling, but an examination of the figures shows "that the wealthy natives of India had not yet reached a high standard of practical charity." The outlook is promising. Abundance of rain has fallen, prices are steadily going down, and there is a good crop of cotton.

Anomalies of sanitation exist in the continued rise in mortality of many towns and cities in India which have effected considerable sanitary improvements. The death-rates of Bombay city and of Calcutta have been going up for years, notwithstanding the abundant water-supply and the improved drainage given to both cities. In a recent report 76 places which have adopted a drainage system or a water-supply are compared and there has been a reduced death-rate in only 33 instances, while there has followed an enhanced rate in 43 instances. Some places have adopted a water-supply without any system of drainage, others have gone in for drainage and left the water-supply alone, and a few have tried both improvements, but the results are not satisfactory. In Cawnpore the intake of the water-supply is in danger of pollution from the sewage of old Cawnpore, while the system of sewerage is hopelessly defective. Benares, again, has had a new water-supply since 1892, but the ground beneath the city is riddled with elongated cesspools. Foul tanks are numerous and the Ganges itself is highly polluted. In the Madras Presidency, while nine

towns have had water-supply schemes completed, only three have had drainage introduced. The cities of Calcutta and Bombay, however, show the most typical examples of the failure of sanitary reforms. The people will drink foul water, they will be dirty in their habits, and they are absolutely careless about the removal of ordure.

Plague throughout India is still increasing. For the last week 2505 deaths were returned, as compared with 2322 for the previous seven days. In the Bombay Presidency and in Bombay city there has been a slight reduction, but in Mysore it has largely increased. There has been an increase in the Bengal Presidency, chiefly in Patna and Gya, but a decline in Calcutta. In Bangalore, both in the city and in the cantonment, there has been a steady increase and during the past week some more of the Kolar goldfields have been attacked. It is pleasing to note the decline in the general mortality in Bombay city, but as 834 deaths were returned (with only 73 from plague and very few from cholera) there is an excess above the normal not satisfactorily accounted for. The high mortality in Calcutta following the floods is also subsiding and has now nearly reached the average.

Oct. 25th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Isolation Hospitals and the Local Government Board.

THE subject of isolation hospitals came before the Lancashire County Council on Nov. 1st. The Public Health Committee of the council had made efforts to induce the President of the Local Government Board to receive a deputation from the Radcliffe, Ramsbottom, Whitefield, and Bury Joint Hospital Committee, with the view of obtaining the consent of that Board to the erection on land belonging to the committee of two hospitals, one for smallpox and the other for infectious diseases, although the distance between the two would be only 400 yards instead of 440 yards, as required by the regulations of the Board. The Hospital Committee wished to avoid the expense of preparing plans unless the Board would relax their regulation. But the Local Government Board, though seldom tender, is "sometimes coy," and the President declined to receive a deputation until an application to borrow the money required, accompanied by the plans of the hospital, was before the Board. The plans have now been prepared and the estimate for the two hospitals is £40,000. It remains to be seen what answer will be given to the application of the committee. It is unfortunate that the 40 additional yards cannot be obtained, for the Local Government Board has earned the reputation of being insistent as to the letter of the law. Isolation hospitals will soon be scattered over the length and breadth of the land. The chairman mentioned that loans had been consented to for the Littleborough, Milnrow, and Wardle Joint Committee and the similar body for Horwich, Westhoughton, and Blackrod, the former having asked for £760 and the latter for £1100, in each case for a hospital for infectious diseases. In connexion with the multiplication of hospitals it is to be hoped that equitable arrangements will be made as to the medical department.

Infantile Mortality in Lancashire.

In putting the report of the Public Health Committee to the vote at the meeting of the Lancashire County Council at Preston on Nov. 1st, Sir J. T. Hibbert said that "infant mortality, he was sorry to say, was greater than it had been for 10 years past." This is a serious statement, and as it may be taken as an indication of the general sanitary condition of the county, "the subject," as he said, "required careful consideration on the part of every sanitary authority." It is discouraging to find that with all the zeal for sanitation evidenced by some sections of the people the result should show no improvement but a falling back as to infant mortality. It appears as if the ignorance, the carelessness, the passive neglect and the actual ill-treatment of children reported with such sickening frequency in the papers, have as yet been little influenced by the education of the people. The knowledge imparted does not seem to be applied, nor do the moral precepts inculcated produce any apparent effect on the conduct. This is disappointing after so many years' experience of what was to be a panacea for many of our social troubles, and it seems to suggest that something is amiss with our system of education.

The Ventilation of Weaving Sheds.

At Burnley on Nov. 7th a firm of cotton manufacturers were summoned for a breach of the Cotton Cloths Factories Act which requires the fulfilment of certain conditions as to the ventilation of weaving-sheds. Mr. W. Williams, an inspector under the Act, said that the case was extremely important, dealing as it did with the regulation of mills and affecting some thousands of weavers. In 1896 the Secretary of State appointed a committee to investigate the conditions under which cotton-weavers worked as regarded artificial ventilation. The regulation was that the proportion of carbonic acid should not be greater than nine volumes to 10,000 volumes of air. The minimum penalty for excess of carbonic acid was £5 and the maximum penalty was £10. On March 15th, 1899, two samples of the air taken from defendants' weaving-shed contained respectively 20·8 and 17·6 volumes of carbonic acid. On March 24th Mr. Williams sent the usual statutory notice and gave plenty of time for improvement in the ventilation to be made, for it was not till Sept. 18th that the defendants were reminded of the notice and asked what steps had been taken to comply with the regulation. The mill was visited on Oct. 17th and three samples of air were taken from different parts. One sample contained 14·7 volumes of CO_2, the second 13·3, and the third, which was submitted to an independent analyst, contained 20·15 volumes. The defendants urged that to comply with the demand was impossible, "and it showed how dependent they were in these matters on the magistrates"—which looks as if the magistrates were expected to condone *lâches*. It was also contended that there was nothing to show that the arrangements of the defendants, when in working order, were not sufficient to comply with the Act. How often the arrangements were in working order or otherwise was not stated by the ingenious advocate for the firm, who were, however, after long deliberation, fined £5. Anyone who is familiar with the blanched faces and the chronic anæmia of the Lancashire mill-hands will rejoice that efforts are being made to improve the conditions under which they work.

The Cheshire County Lunatic Asylum.

At the meeting of the Cheshire County Council held on Nov. 8th the plans for the enlargement of the Parkside Asylum, Macclesfield, were approved, and a resolution was passed granting a sum not to exceed £75,000. The cost of the alterations led to some discussion, but as one of the members said, "the epileptics must be kept apart, and the nurses should have a proper home to retire to." One of the aldermen said that "when they came to reckon the cost per bed they must take into consideration the luxurious requirements insisted upon by the Lunacy Commissioners." Mr. W. Hodgson (Crewe) considered that for many of the patients—aged, imbecile, and hopeless as regards cure—the provision made "need not be so costly as it was," but that no money could be better spent than in efforts for the cure and care of the many other cases. The counties are no doubt feeling "the enormous cost of building, or extending existing buildings, in accordance with the requirements of the Lunacy Commissioners," and Mr. Hodgson thought that something should be done to relieve them, but he did not show how the increase of lunacy was to be prevented.

Proposed Home for Epileptics and Imbeciles in Cheshire.

The Nantwich Board of Guardians evidently wish to keep abreast of public opinion, for at their meeting on Nov. 10th a resolution was moved and carried expressing the conviction that the time had come for the provision of institutions for the reception of imbecile and epileptic inmates of union workhouses and proposing that the board should approve of action being taken by the unions of the country, or by the Local Government Board, to carry out a scheme. A further resolution was moved and carried instructing the clerk to communicate with other boards of guardians in the county with a view to ascertain whether they would be willing to send representatives to a general conference to consider the question of establishing such an institution. It is to be hoped most earnestly that the movement will lead to better provision being made for these unfortunate people.

Dr. D. J. Leech and Owens College.

By the will of the late Dr. D. J. Leech the sum of £10,000 is to be given to Owens College on the death of his

widow for the endowment of a chair of Materia Medica and Therapeutics.

Nov. 13th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Professor Fraser on the Plague in India.

ON Nov. 9th Professor T. R. Fraser, of Edinburgh University, delivered the inaugural address of the session of the Royal Medical Society of Edinburgh, in the society's hall, Melbourne-place. The chair was occupied by the senior President of the Society, Dr. Stewart. Professor Fraser took as his subject "The Plague Commission in India," of which commission he had been chairman. He felt, he said, as if he were a young man again when he found himself standing on that rostrum and addressing a large number of medical students. He had also the gratification of making before that society his first semi-public remarks in connexion with his journey to India. It was not possible, however, for him to do more than touch on some of the most interesting matters which had come under his observation. He had been profoundly impressed with the magnificent success of British government in India. Perfection, however, had not yet been arrived at, owing, principally, to native prejudices. Insanitation was everywhere present in its most repulsive aspects. The symptoms which he had observed of the plague in India were sufficient to show that it was absolutely the same disease as had for a great many centuries devastated the whole world. There did not exist before 1800 any historical record of plague in India. Since then, however, there had been at least two great plagues in India, both of them occurring in the northern parts of India. Of the first of these they were told that it laid waste the country for eight years and that at the same time the land was overrun with mice. The plague had been endemic in India for an unknown time. Of the varieties of plague there was to be noted first the pestis minor (the slight or ambulatory form) and the pestis major, which took various forms. The pulmonary form of pestis major was seldom recovered from. As to the bacillus itself it was one which had little vitality. It throve best in darkness and shade. Rats had been one of the most potent means of spreading the disease in India. Disinfection by chemical agents had proved disastrously unsuccessful in stopping the spread of plague. From the evidence laid before the commission he did not see that any material success had attended any measure except the observation of seaports and the total—not the partial—evacuation of any plague-affected town or village. Evacuation was absolutely necessary owing to the gross insanitation of dwellings there. The whole question was one of sanitary reform, and that must be a wide-sweeping reform, not only restricted to providing windows in houses, removing filth, and laying down sewers, but including an alteration in house construction so that the houses of the natives would resemble in a simple and inexpensive form the bungalows of Europeans in India. At the close of his address Professor Fraser was accorded a very hearty vote of thanks.

The late Principal Williams of the New Veterinary College, Edinburgh.

Principal Williams of the New Veterinary College, Edinburgh, died very unexpectedly at his residence in Edinburgh on Nov. 12th. He had suffered from a bronchial attack for a few days previously to his death, but up to that day no serious symptom had manifested itself. He was able to attend to his duties at the college until a few days before his death. William Williams was born in North Wales in 1832. He was descended from a race of veterinary surgeons He had a brilliant career as a student at the Dick Veterinary College. From 1866 to 1872 he acted as principal of the Dick Veterinary College, at which time, owing to some friction which had arisen between him and the trustees, he dissociated himself from that college and founded the New Veterinary College which is now established in Leith-walk. Principal Williams held many posts in connexion with veterinary matters and he was the author of two text-books, "The Principles and Practice of Veterinary Surgery" and "The Principles and Practice of Veterinary Medicine," which have run to the ninth and eighth editions respectively. As a skilled veterinarian Principal Williams occupied a foremost place in his profession. He was often called on as an expert witness in difficult cases and was frequently consulted by Colonial Governments regarding diseases abroad. He was editor, assisted by his son, of the *Veterinary Journal*. Principal Williams is survived by three sons and two daughters, his eldest son having been for some years his partner and practical manager at the New Veterinary College.

Nov. 13th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Return of the Irish Hospital from South Africa.

IT is announced that the *Dilwara*, with the staff of the Irish Hospital on board, will not arrive at Southampton until the morning of Nov. 19th. This will, however, allow ample time for them to be present at the dinner of welcome at the house of the Royal College of Surgeons in Dublin on the 24th.

Death of F. J. B. Quinlan, M.D. Dub., of Dublin.

Dr. F. J. B. Quinlan, who died on Nov. 8th at his residence in Lower Fitzwilliam-street, was a well-known physician and teacher in Dublin for the last 40 years. He was consulting physician to St. Vincent's Hospital for some years and Professor of Materia Medica in the Catholic University for more than a quarter of a century. He graduated in Arts and in Medicine in 1857 and in 1862 he took the degree of M.D. He was a familiar figure at the meetings of the Senate of Dublin University and he was also a Fellow and Examiner of the Royal College of Physicians of Ireland.

The Belfast Workhouse.

The condition of the Belfast Workhouse and its general arrangements are anything but satisfactory. It is evident from the report of the meeting of the guardians on Nov. 6th, that there is friction among the internal officials, and the infirmary committee has sent back the plans for the extension of the nurses' homes to the architect, as they do not provide sufficient accommodation for the necessities of the case. A motion was proposed to the effect

> That, in view of the inadequate accommodation in the house, as declared by the Local Government inspector's report, the question be referred to a sub-committee to consult with the Board's architect as to the changes necessary and the accommodation wanted, the report to include a statement of accounts.

This motion, which would have tended to introduce some system into the arrangement of the workhouse, was lost. Instead of this there are plans for schools, laundry, bath-rooms, dining-halls, plans for extensions here and enlargements there, but no real systematised plan for a complete reorganisation of the whole institution.

The Tyrone and Fermanagh Lunatic Asylum.

At the monthly meeting of the committee of management of this asylum, held on Nov. 8th, a report was read from the medical inspector of lunacy, Dr. E. M. Courtenay, in which he drew attention to the improvement in the condition of the asylum and the influence which such improvements had had on the mental condition of the patients. Instead of noise and excitement everyone was quiet and busy, the women being engaged in doing light work, and there was plenty of room for all. Suggestions were made by the inspector for improvements on the male side of the house, and he believed that when the hospital for infectious diseases was completed it would be of great service to the asylum. The erection of cottages for the male attendants was approved of. There were at present 658 patients in the institution and the death-rate was still high—higher, in fact, than in any other asylum in Ireland. The quiet and order prevailing in the house the inspector characterised as very praiseworthy.

Coal-gas Poisoning in Belfast.

In Belfast last week there were two cases of coal-gas poisoning, fortunately not fatal. The present gas supplied to Belfast is a very poor illuminant, many of the streets which are lit by it being almost dark at night, but, in addition, it is impregnated with the so-called "water-gas," and has consequently a large proportion of CO, which is so deadly in its effects. The old coal-gas had a pungent smell and so people had notice of its escape in a room, but the present Belfast gas is not nearly so easily detected by its odour, hence its greater danger.

The Royal Victoria Hospital, Belfast.

It is now announced, in an official letter to the Lord Mayor of Belfast from the Lord Lieutenant of Ireland, that the visit of the Prince and Princess of Wales to Belfast to lay the foundation stone of the new Royal Victoria Hospital which is to commemorate Her Majesty's Jubilee will take place towards the end of April, 1900. While in the north of Ireland their Royal Highnesses will stay at Mountstewart with the Marquis of Londonderry. Various committees in connexion with the construction of the hospital met last week and a good deal of important work was transacted.

The Lord Chancellor's Visitor in Lunacy.

Dr. William Calwell, physician to the Royal Victoria Hospital, Belfast, and secretary to the medical staff, has been appointed in room of the late Dr. R. S. Smith, Lord Chancellor's Visitor in Lunacy for Belfast and district. The appointment will be regarded as very suitable by all who know Dr. Calwell.

The Cork North Infirmary.

At the last monthly meeting of the governors of the Cork North Infirmary applications were received from Dr. Daniel Joseph O'Mahony and Dr. Nathaniel Henry Hobart for the post of intern surgeon. Both gentlemen held the positions of extern surgeons, Dr. O'Mahony being the senior. There was rather an acrimonious discussion, and finally all of Dr. O'Mahony's supporters, with the exception of one, withdrew from the room and Dr. Hobart was declared elected. The discussion was then transferred to the local press and a member of the county council gave notice that he would move that the grant of £700 a year given by the council to the infirmary he withheld if the election of Dr. Hobart should not be declared invalid. Dr. O'Mahony's friends urged that he ought to have been appointed as he was senior in the extern department, while some of Dr. Hobart's supporters alleged that Dr. O'Mahony could not adequately discharge the duties of intern surgeon as he was medical officer to one of the city dispensaries, and the latter view was endorsed by the existing intern staff in a joint letter which they addressed to the Board. At the monthly meeting held last week the whole question came up for discussion again. Some of the governors stated that they had received no notification of the previous meeting, and claimed, therefore, that the election of Dr. Hobart was null and void. After a prolonged discussion a suggestion was thrown out that both gentlemen should be appointed. Four of the governors were nominated to ascertain the views of the two candidates, and finally a decision was arrived at that both be elected, Dr. Hobart to be senior with a larger number of beds. It is singular what an interest the election evoked even outside medical circles. Professor Dundon has been appointed extern surgeon to the infirmary.

The Cork South Infirmary.

Dr. P. J. Cremen and Mr. Norman Ian Townsend have been appointed respectively consulting physician and intern physician to the Cork South Infirmary.

Death of John Richard Burke, M.D. R.U.I., of Douglas, Co. Cork.

Last week the members of the medical profession in Cork and the citizens generally heard of the death of Mr. Richard J. Burke with sincere regret. Mr. Burke received his medical education at Queen's College, Cork, and soon afterwards was appointed medical officer of the Douglas dispensary district. Mr. Burke was the most amiable of men and made for himself a host of friends. He had a particularly sweet, well-trained tenor voice, and was constantly in evidence at concerts inaugurated for charitable purposes. His funeral was a very large one, and the number of floral wreaths contributed by his sorrowing friends was so great that a special hearse had to be provided to convey them.

Nov. 14th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The New Department of Stomatology at the St. Louis Hospital.

THE new buildings of the department of stomatology and dental surgery in the St. Louis Hospital have recently been opened. Of late years this department has become of considerable importance. In 1894, when it was open two days a week, the number of patients was 2000 per annum. In 1898 the number had risen to 3361, and in 1899 to 5086. The want of room and the marked deficiency of the "plant" gave rise to perfectly justifiable complaints on the part of Dr. A. Combe, the surgeon in charge. If any grave complications of dental origin came up for treatment such as fistulæ, necrosis of the jaws, or burrowing abscesses they had to be seen to in the operating rooms allotted to the general surgeons who always courteously did what they could to help. Besides this the strict antisepsis necessary for such operations, especially in a hospital devoted to such cases as are treated at St. Louis, was difficult to carry out. The new block contains a large clinical room and an operating theatre separated by a sterilising room, from which sterilised water, both hot and cold, is supplied to the adjoining rooms. Here also are stoves for sterilising instruments and dressings. In the two adjoining rooms there are 10 wash-hand basins and sinks with running water, together with tables of white vitrified material on which are boilers for the sterilisation of instruments such as forceps. Large bow windows give plenty of light and all the paint is white. There are five couches for the examination of patients and the electric installation is particularly full. There are lamps for use on dark days, small lamps to illuminate the mouth, a transforming-board for heating cauteries off the light circuit, and in a dark room there are electric lamps for trans-illumination of the face whereby to diagnose sinusitis and affections of the antrum. Opening out of the operating-room is a room in which patients may rest after having been anæsthetised, so that in the case of out-patients they need not be sent out immediately. The surgeons' room is fitted up with microscopes and other apparatus. This beautiful installation is the first complete one of the kind to be supplied to a Paris hospital.

Lead Poisoning in Lapidaries.

At the meeting of the Academy of Medicine held on Oct. 30th M. Fiessinger read a paper upon the subject of Lead Poisoning in Lapidaries. He pointed out that though the trade of a lapidary was not usually reckoned among those which expose their members to a danger of lead poisoning yet it was very important to remember that the cutting of precious stones employed thousands of workmen of whom a large number daily inspired particles of lead. On the high ground of the *arrondissements* of Nantua and of St. Claude are a great number of such workmen—about 4000. In the commune of Lajoux there are 200 lapidaries out of a population of 553. Some of these only work at stone-cutting intermittently, others, on the contrary, spend their whole time in this work and are employed some 15 hours per diem. All pastes, crystals, doublets, and certain precious stones such as amethysts are cut on a leaden wheel. The wheel is wetted and sprinkled with emery powder. The lapidary starts the wheel and applies the stone to be cut to it, when clouds of dust arise made up of particles of emery and of lead. The stones as they are cut are placed in a small basket; when a sufficient number are collected the workman takes this basket in his hand and brushes the stones with a dry brush. Clouds of lead dust are again raised. The workman breathes lead and his hands are also covered with lead. Poisoning shows itself most frequently in the form of colic; afterwards come dyspepsia, hysteria, neurasthenia, nephritis, epilepsy, and anæmia. Paralysis is relatively rare. No case of gout has been noted. The manner of living to which mountaineers are prone no doubt accounts for this immunity. They eat very little meat and that only twice or thrice a week; neither do they drink wine as a rule, while they never take it between meals. So temperate a diet is certainly not enough to bring about hepatic insufficiency, and, as Murchison pointed out, it is this which prepares the ground for gout. Climate is also a factor. These lapidaries live at an altitude of from 800 to 1500 metres. At such an altitude tissue-change activity is increased and elimination of waste products is more easily performed than in the low country. Although when he does work at stone-cutting his hours are long the lapidary does not spend his whole year at stone-cutting. In the summer he works in the fields and devotes his time to raising cattle, thus leading an active life. Lapidaries, too, are aware of the dangers incident to their trade and take care of themselves. Wine they know to be dangerous because it favours the absorption of lead. They

drink plenty of milk and always wash carefully before they eat. M. Fiessinger recommended them to use a covering of moistened gauze over the nose and mouth, but the workmen to whom he spoke were afraid of being laughed at if they used it. They preferred the preventive measures with which they were familiar. These, however, are obviously insufficient. It is much to be desired that the use of the lead wheel could be given up. The trade is without doubt dangerous. It certainly affords a competence but not a long life. With the exception of gout all the other known manifestations of lead poisoning exist among the workmen and tuberculosis is also common.

The Treatment of Strangulated Hernia by Ether Compresses.

At the meeting of the Academy of Medicine held on Oct. 30th M. Fiessinger described sundry cases of strangulated hernia treated by the application of ether compresses. Reduction of the hernia usually occurred after an interval of from half an hour to three hours. Hernia had thus been reduced in which the strangulation had lasted for over 40 hours, in which taxis had been frequently tried and in which fæcal vomiting had begun. M. Fiessinger cited many cases in which this treatment had been tried, with success by his medical friends both in Paris and in the provinces. The prolonged application of compresses soaked in ether acted better than either ice-bags or ether spray. And simply because the method of reduction is so efficacious it was as well not to make trial of it for longer than 30 hours lest a loop of gangrenous gut should be returned.

Nov. 14th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

Russell's Bodies in Malignant Tumours.

AT the Fifteenth Congress of the Italian Society of Surgery held in Rome from Oct. 27th to 30th, Durante related a case in which he had operated successfully for cerebral tumour, removing a growth of dural origin of the size of a closed fist from the right post-Rolandic region. Roncali made a microscopical examination of the tumour and found it to be a fibro-sarcoma containing parasites of a blastomycetic nature. The position of these in the neoplasm was such as to indicate a genetic correlation, as of cause and effect, between the parasites and the tumour, and on this ground, and also from experiments which he had made, Roncali concluded: (1) that blastomycetes were not, and could not possibly be, accidental in malignant tumours; (2) that non-success in isolating the parasites from a tumour was not a proof that they did not exist or that they were degenerations, because when the parasites assumed the character of Russell's bodies they were not cultivable, as had recently been demonstrated by Sanfelice; (3) that the parasites existed constantly in malignant tumours if one knew how to recognise them and had the patience to look for them carefully, as had been proved by Plimmer; (4) that the coccidia which had been described as being present in cancer and sarcoma were nothing but blastomycetes; and (5) that blastomycetes were the real etiological factors in epithelioma and sarcoma, as he, Roncali, had insisted upon since 1895, and as might now be considered proved by the experimental work of Sanfelice, Plimmer, Bra, and Leopold. In the discussion which followed several speakers expressed scepticism as to the parasitic nature of the so-called blastomycetes. Durante said that he would only accept the blastomycetic theory of the origin of malignant tumours when it could be shown that cancroid or cutaneous growths, transplanted into glandular tissue, there reproduced the same type of cell, and this he contended had not yet been done.

Congresses.

On the three days immediately preceding the Italian Congress of Surgery above mentioned—namely, on Oct. 24th, 25th, and 26th, the General Assembly of the Delegates of the Ordini dei Sanitari ed Associazioni Congeneri was held at Rome under the presidency of Professor Durante. In his opening address the professor congratulated the members on the fact that in the short space of four years more than 42 "Ordini di Medici" had been formed in the chief cities of the kingdom, besides other associations under other names but all having the same object in view—namely, the safeguarding of the interests of the medical profession in Italy. The Seventh Italian Congress of Obstetrics and Gynæcology was held at Naples from Oct. 20th to 23rd. The presidents were Professor Morisani, Professor Calderini, and Professor Mangiagalli. It was decided to hold the congress of 1901 at Rome.

Professor Grassi on Malarial Prophylaxis.

Professor Grassi, having done so much towards demonstrating the practicability of the new prophylaxis against malaria, is now endeavouring to interest the Government in the question and to induce them to act without delay upon the knowledge and experience which have been gained by recent investigations and experiments. With this object he has addressed an open letter to the Minister of Agriculture and to the Minister of the Interior recommending (1) the compulsory treatment with quinine of all cases of malaria, and (2) the compulsory protection of houses in malarious places from the entrance of mosquitoes. All persons in such places who are infected should be regarded as contagious and dangerous and therefore should be carefully defended against mosquitoes by the bites of which the disease might be conveyed to others. This should be done during the malarial season from June till December, but more important still is the treatment of the cases which occur during the first half of the year before there has been time for the mosquitoes to have become infected from them. Grassi, indeed, believes that if as much quinine were used during the first half of the year as is now taken during the second half, malaria would speedily diminish and disappear from the country. He recommends that malaria be included in the list of infectious diseases and that it be made penal to neglect either its treatment or the measures for preventing its spread. He would punish the proprietor who does not protect his peasants from the disease, the railway companies who do not defend their employés and their families against it, and even the mother who neglects to preserve her children from the bites of malariferous mosquitoes. As to the value of reclamation works and of high-class agriculture in combating malaria he holds that while useful and perhaps sufficient for the purpose, they are not necessary for freeing Italy from the disease, since this can be accomplished more quickly and at less expense by the new prophylaxis. At the same time, thanks to the latter, they can now be carried out with safety where hitherto they have been too dangerous; and it becomes incumbent upon the Government to promote and to encourage such works, utilising the knowledge gained by these recent discoveries to render them even more efficacious than they have hitherto been. Grassi further recommends the application of these prophylactic measures to a comparatively small area for the first year, as, for example, to the Agro Romano or the Tuscan Maremma, or Calabria, until more experience is gained and the best method of procedure is ascertained. For the distribution of quinine amongst the people he would employ soldiers.

Nov. 7th.

Obituary.

THE VERY REV. RAYMOND FERRERS PALMER, M.R.C.S. ENG.

THE death is announced, at the age of 81 years, of Raymond Ferrers Palmer. Father Palmer was the second son of Dr. Shirley Palmer, sometime High Bailiff of Tamworth. He received his education at Tamworth Grammar School and Queen's College, Birmingham, and having qualified as M.R.C.S. Eng. in 1846 practised for a few years in Tamworth as a surgeon. Having been received into the Roman Catholic Church by Cardinal Wiseman he entered the Dominican Order in their house at Woodchester. He devoted his time to historical and antiquarian research and received in 1897 the honorary degree of Master in Theology. His principal work was that of collecting and collating the ancient MSS. which bear upon the history of the Dominicans in England. "Part of the results of his labours," says the *Catholic Times*, "may be seen in some 90 closely-written articles contributed by him to the *Reliquary*, but much still remains in manuscript in the Dominican Archives in Rome and London."

JOHN HAWTHORNE, M.D. R.U.I., L.R.C.S. EDIN.

THE death is announced of a well-known Ulster practitioner, Dr. John Hawthorne, which took place at his

residence, Banbridge, co. Down, on Nov. 6th, from exhaustion following carbuncle, after a short illness of two weeks. Born in Banbridge 65 years ago, his early education was obtained at the well-known school of Mr. Andrew Mullan. He afterwards studied at Queen's College, Belfast, where he was a hard-working student and obtained several prizes. In 1857 he became a Licentiate of the Royal College of Surgeons of Edinburgh, and in 1861 he graduated M.D. of the old Queen's University. Starting practice in his native town, Banbridge, his success was rapid, and in 1872 he was appointed medical officer of the Banbridge Union Infirmary and Fever Hospital. He was also a certifying factory surgeon and a justice of the peace for County Down. A man of sound professional knowledge, Dr. Hawthorne enjoyed the complete confidence of his patients. Taking an active part in the affairs of his native town and being a man of shrewd business habits his death is greatly deplored. He was buried on Nov. 9th, his funeral being attended by a large number of personal friends and former patients.

JOHN QUILLER COUCH, M.R.C.S., L.M. ENG., L.S.A. LOND.,

CONSULTING SURGEON, PENZANCE INFIRMARY.

MR. J. QUILLER COUCH died at his residence, Chapel-street, Penzance, on Nov. 6th, in his seventieth year. Mr. Couch, who belonged to an old Cornish family, was the son of the late Mr. Jonathan Couch, M.R.C.S., of Polperro. He received his medical education at Guy's Hospital and qualified M.R.C.S., L.M. Eng., and L.S.A. in 1862. Mr. Couch had practised for many years in Penzance, having succeeded to the practice of his brother, Mr. R. Q. Couch. The deceased held several appointments, being medical officer of health for the Madron and Ludgvan Urban Districts, medical officer and public vaccinator for the No. 5 District, Penzance Union, and surgeon to the Great Western Railway Company. He was also consulting surgeon to the Penzance Public Infirmary and Dispensary. Mr. Couch will be much missed in Penzance, where he was very popular. He had been in failing health for some time past, although he continued his professional duties up to the last month.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The The deaths of the following eminent foreign medical men are announced:—Dr. W. Browning, Professor of Anatomy, Long Island Hospital, Brooklyn, U.S.A.—Dr. Teljeiro, Professor of Clinical Surgery in the University of Santiago, Spain.—Dr. G. Bülau of Hamburg.—Dr. Turnbull of Philadelphia, a voluminous author of books and papers on Diseases of the Eye.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.—At a stated meeting of the College held on Nov. 9th the following successful candidates were admitted to their respective Licences:—

Licentiate in Medicine.—E. J. M. Watson, M.D.
Licentiates in Midwifery.—Miss Agnes Benjamin, L.R.C.P. & S. Edin., and Miss Honorine Forbes, L.R.C.P. & S. Edin.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Julius Lazarus of the Jewish Hospital has been granted the title of Professor.—*Bonn:* Dr. Grouven has been recognised as *privat-docent* of Dermatology.—*Breslau:* Dr. Thilenius of Strasburg has been appointed Extraordinary Professor or Anatomy. He has been a great traveller, having visited North America, Australia, and the Polynesian Islands in search of scientific information.—*Chicago (Rush Medical College):* Dr. Edwin Klebs, Professor of Pathological Anatomy, has resigned, and is returning to Europe.—*Christiania:* Dr. F. G. Herbitz has been appointed Professor of Pathological Anatomy.—*Gratz:* Dr. Otto Barnik has been appointed *docent* of Otology.—*Kiel:* Dr. Deetjen has been recognised as *privat-docent* of Physiology.

DR. R. T. MEADOWS has been elected an alderman by the Saltash Town Council.

APOTHECARIES' HALL OF IRELAND.—The following candidates have passed (October, 1900) the final examinations in medicine, surgery, and midwifery: D'Arcy Irvine Hamilton, John Thompson, and Stafford Adye Curran.

UNIVERSITY COLLEGE OF WALES.—The annual meeting of the University College of Wales was held at Aberystwyth on Oct. 26th. The annual report was favourable. The Bishop of Hereford delivered the inaugural address.

SUPERANNUATION ALLOWANCE.—Mr. Richard Ellery, L.R.C.P. Edin., M.R.C.S. Eng., who has for 31 years been district medical officer of the Plympton (Devon) Board of Guardians, has been granted a superannuation allowance of £50 per annum.

BRISTOL MEDICAL SCHOOL.—The annual dinner of the Bristol Medical School will be held at the Royal Hotel, Clifton, on Nov. 22nd. Dr. Shingleton Smith will preside and Sir William Broadbent, Bart., will be the guest of the evening.

SALARIES OF MEDICAL OFFICERS OF HEALTH.—At the meeting of the Axminster Rural District Council held on Nov. 8th a letter was read from the Local Government Board refusing to sanction the reappointment of the medical officer of health. In a former communication the Board had intimated that they would take this step unless a larger salary was granted.

DENTAL HOSPITAL OF LONDON.—The annual dinner of the staff and past and present students will be held on Saturday, Nov. 24th, at the Whitehall Rooms, Hôtel Métropole, under the presidency of Mr. F. A. Bevan, a trustee and vice-president of the hospital. Gentlemen either now or formerly connected with the hospital or medical school who may through inadvertence not have received special notice and who desire to be present are requested to communicate with the Dean at the Dental Hospital, 40, Leicester-square, London.

LITERARY INTELLIGENCE.—Mr. George Henry Makins, F.R.C.S. Eng., surgeon to St. Thomas's Hospital and late consulting surgeon to the South African Field Force, has in active preparation a work which he entitles "Surgical Experiences in South Africa, 1899-1900: being mainly a Clinical Study of the Effects of Injuries produced by Bullets of Small Calibre." The volume will be published by Messrs. Smith, Elder, and Co.—The increasing interest taken in the study of astronomy has induced the proprietors of *Knowledge* to issue an annual for students and workers in that science specially devoted to their requirements. It is entitled "Knowledge Diary and Scientific Handbook, 1901," and will contain amongst other things useful tables, original articles, a calendar of scientific events, and a blank diary portion. The price is 3s. net, and the diary is published at 326, High Holborn, London, W.C.

BRITISH MEDICAL TEMPERANCE ASSOCIATION.—The annual breakfast meeting given by the British Medical Temperance Association to medical students was held at the Cannon-street Hotel, London, on Nov. 9th. There was a large attendance, including students from the London Hospital, Guy's Hospital, St. Thomas's Hospital, King's College Hospital, St. Mary's Hospital, Middlesex Hospital, and the London School of Medicine for Women. Professor Sims Woodhead presided and the meeting was addressed by Mr. A. Pearce Gould, Mrs. Scharlieb, Dr. J. Dixon, Mr. W. McAdam Eccles, and Dr. J. J. Ridge.—Mr. Pearce Gould said that they were not asked to join a waning but a growing cause. The alteration in the medical and surgical use of alcohol in the last 30 years had been immense; so also had been the estimate formed by business men of the value of total abstainers, whose lives were formerly considered uninsurable at ordinary rates, whereas now every life insurance office was only too glad to get them. Total abstinence would enable them to make the best use of their powers and was helpful physically, mentally, and morally. Alcohol never gave self-control or added to a man's power of work. The responsibility was great in view of the terrible havoc caused by drink, not only by the coarser forms of drunkenness but in its more insidious forms, and he hoped that they would not become hard and callous to all this. He could not help those who were given to drink so well if he were not an abstainer himself, and there were many needing help whose

moral faculties had been weakened. He would also remind them that though there was a large pathology of alcohol there was absolutely none of total abstinence.—Mrs. Scharlieb also urged them to join the association. Her experience in India was that the abstaining natives were most excellent patients, and in severe illness such as enteric fever and in operation cases did well in a way she had never seen others do. She rarely used alcohol even in the most severe operations. There had, no doubt, been great improvement in some of the drinking customs, but if England used the millions spent on alcohol in other ways it would be a blessing to the world. She believed that if they abstained they would be stronger in body, soul, and spirit.—Votes of thanks were passed to the speakers and to Professor Sims Woodhead. 19 students afterwards joined the association.

BOOKS, ETC., RECEIVED.

ALT, JOHANNES, Frankfurt.
Die Entstehung und Ursache der Taubstummheit. Von Dr. Fritz Danziger. 1900.

ARNOLD, EDWARD, Bedford-street, Strand, London.
Food and the Principles of Dietetics. By Robert Hutchison, M.D. Edin., M.R.C.P. With Plans and Diagrams. 1900. 16s. net.

BAILLIÈRE, J. B., ET FILS, Paris.
Chirurgie des Voies Biliaries. Par Dr. Victor Pauchet. 1900.

BALE, J., SONS, AND DANIELSSON, Great Titchfield-street, London.
Life in an Open-air Sanatorium. By Dr. C. Reinhardt. Illustrated. 1900. Price 1s.

BLACK, A. AND C., Soho-square, London.
On Sanitary and Other Matters. By Geo. S. Keith, M.D., LL.D., F.R.C.P.E. 1900.

BLACKWOOD, W., AND SONS, London and Edinburgh.
French Cookery for English Homes. 1900. Price 2s. 6d.

BRUCK, L., Sydney, Australia; and BAILLIÈRE, TINDALL, AND COX, London.
The Australian Medical Directory and Handbook for 1900. Fifth edition.

CASSELL AND COMPANY, London.
The Tale of a Field Hospital. By Frederick Treves. Illustrated. 1900. Price 6s.

CHATTO AND WINDUS, London.
The Prolongation of Life. By R. E. Dudgeon, M.D. 1900. Price 3s. 6d.

CHURCHILL, J. & A., London.
Vasectomy, relative to Prostatic Disorders and Catheter Life. By S. Harrison, F.R.C.S. Eng. 1900. Price 3s. 6d.

DEUTICKE, F., Leipzig und Wien.
Beiträge zur Dermatologie und Syphilis. Von Dr. J. Neumann. 1900.
Die Syphilis und die venerischen Krankheiten. Von Dr. E. Finger. 5. Auflage. 1901.

GOVERNMENT PRINTING OFFICE, Washington.
Public Health Reports, issued by the Supervising Surgeon-General, Marine Hospital Service. Vol. xiv., Nos. 1 to 52. 1900.

GREVEL, H. AND CO., King-street, Covent Garden, London.
An Introduction to Modern Scientific Chemistry. By Dr. Lassar-Cohn. Translated from the second German edition. By M. M. Pattison Muir, M.A. Cantab. Illustrated. 1901. Price 6s.

HIRSCHWALD, AUGUST, Berlin.
Anleitung zur Mikroskopischen Untersuchung des Auges. Von Dr. R. Greeff. Zweite Auflage. 1901.

HOEPLI, ULRICO, Milano.
Therapia delle Malattie dell' Infanzia. Del Professor C. Cattaneo. 1901.

INTERNATIONAL MEDICAL MAGAZINE COMPANY, Philadelphia.
Acromegaly, Syringomyelia, Crossed Knee-jerk, Anterior Poliomyelitis. By G. Hinsdale, A.M., M.D. 1900.

JARROLD AND SONS, Warwick-lane, London.
The Norfolk and Norwich Hospital, 1770 to 1900. With illustrations and plans. By Sir Peter Eade, M.D., Lond. 1900. Price 7s. 6d. net.

KARGER, S., Berlin.
Arzneiverordnungen in der Kinderpraxis. Von Dr. H. Guttmann. 1901.
Vademecum für Histopathologische Untersuchungen in der Gynäkologie. Von Dr. R. G. Orthmann. 1901.

LEHMANN, J. F., München.
Atlas und Grundriss der Chirurgischen Operationslehre. Von Dr. O. Zuckerkandl. 16. Band. 1901.
Atlas und Grundriss der Pathologischen Anatomie. Von Dr. C. Bollinger. 1. Band. 1901.
Grundzüge der Hygiene. Von Dr. W. Prausnitz. 1901.

LONGMANS, GREEN AND CO., Paternoster-row, London.
A Manual of Surgical Treatment. By W. W. Cheyne, M.B., F.R.C.S., and F. F. Burghard, M.D. and M.S. Lond., F.R.C.S. In six parts. Part 4. 1900. Price 14s.
Treatment of Simple Fractures of the Limbs. By Wm. H. Bennett, F.R.C.S. To which is appended a summary of the Opinions and Practice of about 300 surgeons. Reprint. 1900. Price 2s. 6d.
The Essentials of Practical Bacteriology. By H. J. Curtis, B.S., M.D. Lond., F.R.C.S. 1900. Price 9s.

MACMILLAN AND CO., London.
Life and Letters of Thomas Henry Huxley. By his Son, Leonard Huxley. In two volumes. Vols. i. and ii. 1900. Price 30s. net.

MASSON ET CIE, Paris.
Étude Pratique sur le Mal de Pott. Par Dr. V. Menard. 1900.

METHUEN AND CO., Essex-street, Strand, London.
The Science of Hygiene. By W. C. C. Pakes, D.P.H. Camb., F.C.S. Illustrated. 1900. Price 15s.

MURRAY, JOHN, Albemarle-street, London.
Bacteria, especially as they are Related to the Economy of Nature, to Industrial Processes, and to the Public Health. By George Newman, M.D., F.R.S. Edin., D.P.H. Camb. Illustrated. Second edition. 1900. Price 6s.

OLIVER AND BOYD, Edinburgh.
The Transactions of the Edinburgh Obstetrical Society. Vol. xxv. 1900.

PUTNAM'S, G. P., SONS, Bedford-street, Strand, London.
Medical and Surgical Nursing. Edited by H. J. O'Brien, M.D. 1900. Price 6s.

REDMAN AND COMPY., 129, Shaftesbury-avenue, London, W.C.
Practical Gynæcology. By E. E. Montgomery, M.D. Illustrated. 1900. Price 25s. net.

SCOTT, WALTER, Paternoster-square, London.
The Child: a Study in the Evolution of Man. By Alexander F. Chamberlain, M.A., Ph.D. Illustrated. 1900. Price 6s.

SWAN SONNENSCHEIN AND CO., London.
Text-book of the Embryology of Invertebrates. By Dr. R. Korschelt and Dr. K. Heider. Translated from the German by M. Bernard and edited by M. F. Woodward. Vol. iv. 1900.

UNWIN, T. F., Paternoster-buildings, London.
First Aid to the Injured. With Special Reference to Accidents occurring in the Mountains. By Dr. Oscar Bernhard. Translated from the German by M. G. Foster, M.A. M.D. Cantab. 1900. Price 2s. 6d.

VIEWEG UND SOHN, Braunschweig.
Lehrbuch der Anorganischen Chemie. Von Prof. Dr. H. Erdmann, in Halle. Zweite Auflage. 1900.

VOGEL, F. C. W., Leipzig.
Pathologie und Therapie der Perityphlitis. Von Dr. E. Sonnenburg. 1900.

VOSS, L., Hamburg.
Krol's Stereoskopische Bilder für Schielende. Von R. Perlia. 1900.

WILLIAMS AND NORGATE, Henrietta-street, Covent Garden, London.
Hand Atlas of Human Anatomy. By W. Spalteholz, with others. Vol. i., Bones, Joints, Ligaments. 1900.
Lehrbuch der Histologie und der Mikroskopischen Anatomie. Von Dr. L. Szymonowicz. Lieferung 5. 1900. Price 3s. net.

Wright's Improved Physicians', Surgeons', and Consultants' Visiting Lists, compiled by Robert Simpson, L.R.C.P., L.R.C.S. Form A., 1901, eighth edition; Form B, perpetual eighth edition, 1901; price 5s. 6d. each, net.

Magazines, &c., for November: Strand Magazine, Boy's Own Paper, Girl's Own Paper, Leisure Hour, Sunday at Home, Ludgate Magazine, Westminster Review, Contemporary Review, Friendly Greetings, Myra's Journal, Pall Mall Magazine, Windsor Magazine, English Illustrated Magazine, Knowledge, Humanitarian, Wide World Magazine, New Century Review, North American Review, Cornhill Magazine, Sandow's Magazine, New Monthly.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

ADAMS, E. G. B., M.B. Lond., L.R.C.P., M.R.C.S., F.R.C.S. Eng., has been appointed District Medical Officer, Yeovil Union, vice J. D. Adams, resigned.

ALDERMAN, H. C., M.R.C.S., L.R.C.P., has been appointed House Surgeon at the Ida Hospital (Leeds General Infirmary).

ANDERTON, E. W., M.B., Ch.B. Vict., has been appointed Resident Obstetric Officer at the Ida Hospital (Leeds General Infirmary).

BOND, FRANCIS THOMAS, M.D. Lond., M.R.C.S., F.R.S. Edin., has been re-appointed Medical Officer of Health by the Thornbury (Gloucestershire) Rural District Council.

COLLINSON, H., M.R.C.S., L.R.C.P., has been appointed to be Resident Medical Officer at the Ida Hospital (Leeds General Infirmary).

COLLS, P. C., L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer, Cranbrook Union, vice W. R. White, resigned.

CREMEN, P. J., M.D. Irel., L.R.C.S. Eng., has been appointed Consulting Physician to the Cork South Infirmary and County Hospital.

CROSSLEY, LEONARD, M.B., C.M. Edin., has been appointed Second House Physician to the City of London Hospital for Diseases of the Chest, Victoria Park, E.

FENN, ARTHUR COOPER, L.R.C.P. Irel., L.M. R.C P.I., L.S.A. Lond., has been appointed Medical Officer, Dover Union Infirmary, vice Edwin Fenn, retired. Also Surgeon and Agent for Dover, to date Jan. 1st, 1901, vice Edwin Fenn, retired.

GOUGH, W., M.R.C.S., L.R.C.P., has been appointed House Surgeon at the Ida Hospital (Leeds General Infirmary).

GOWDY, ANNIE C., M.B. Lond., has been appointed Assistant Medical Superintendent to the Hull City Asylum.

GRIEVE, WALTER DUNCAN, M.B., C.M. Edin., has been appointed one of the Staff Surgeons to the Dumfries and Galloway Royal Infirmary.

JACOB, E. L., M.R.C.S., has been re-appointed Medical Officer of Health by the Reigate Rural District Council.

JUDGE, E. MACDONALD, L.S.A., has been appointed Medical Officer to the Ancient Order of Foresters (Court Sympathy), vice F. Smith.

LIVINGSTONE, G. R., M.B., C.M. Edin., has been appointed Assistant Surgeon to the Dumfries and Galloway Royal Infirmary.

LÜCKHAFF, J., M.B., C.M. Edin., has been appointed House Surgeon at the Ida Hospital (Leeds General Infirmary).

MCFERRAN, J. R., L.R.C.P. L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Assistant Medical Officer to the Infirmary, Leeds Union, vice J. Guy, resigned.

MILLEN, S. A., L.R.C.P. Lond., M.R.C.S., has been appointed District Medical Officer, Malmesbury Union, vice P. H. Nutting, resigned.

MANSON, R. H., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Public Vaccinator and Medical Officer for the West and North-West Districts, Darlington Union, and Police Surgeon for the Darlington Division of the Durham County Constabulary, vice R. Taylor Manson, deceased.

MASON, SAMUEL BUTLER, M.R.C.P. Edin., L.F.P.S. Glasg., Surgeon-Major 4th V.B. South Wales Borderers, has been appointed Recruiting Medical Officer at Pontypool, vice Haslett, resigned.

O'MEARA, J. P., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed District Medical Officer, Walsall Union, vice F. W. Sydenham, resigned.

PALING, ALBERT, M.B., B.S. Lond., F.R.C.S., has been appointed Surgeon to the Burton-on-Trent Infirmary.

ROSS, STEPHEN JOHN, M.B., Ch.B. Vict., has been appointed Honorary Assistant Surgeon to the Bedford County Hospital.

STEVENSON, ROLAND A., L.R.C.P. Lond., M.R.C.S., has been appointed House Physician to the Hospital for Consumption, Brompton, S.W.

THOMSON, A., M.D. Glasg., L.F.P.S. Glasg., has been appointed Honorary Surgeon to the Dumfries and Galloway Royal Infirmary.

TOWNSEND, N. J., L.R.C.P., L.R.C.S. Irel., has been appointed Intern Physician, South Infirmary, Cork.

VINCENT, SWALE, M.B. Lond., L.R.C.P. Lond., M.R.C.S., has been appointed Lecturer on Histology at the University College of South Wales and Monmouthshire.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BRENTFORD UNION.—Assistant Medical Officer for the new infirmary, unmarried. Salary £100 per annum, with furnished apartments, rations, washing, &c. Subject to statutory deductions. Apply to the Clerk to the Guardians, Union Offices, Isleworth, W.

BRIDGNORTH AND SOUTH SHROPSHIRE INFIRMARY.—House Surgeon. Salary £80, with board and lodging in the Infirmary.

BRIGHTON AND HOVE LYING-IN INSTITUTION AND HOSPITAL FOR WOMEN, 76, West-street, Brighton.—House Surgeon, unmarried. Salary £80 per annum, with furnished apartments, board, gas, coals, and attendance.

BRIXTON DISPENSARY, Water-lane, Brixton.—Resident Medical Officer for two years, unmarried. Salary £150, with furnished apartments, attendance, coal, and gas.

CARDIFF INFIRMARY.—Assistant House Surgeon for six months. Salary at the rate of £75 per annum, with board, washing, and apartments.

CHILDREN'S HOSPITAL, Forest House, Nottingham.—House Surgeon for six months, unmarried. Females ineligible. Salary at the rate of £100 per annum, with board and residence.

CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY, Wakefield.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

COOMASSIE EXPEDITION.—Medical Officers for six months in the colony, with a salary at the rate of £30 a month, and a gratuity on returning to England of ten days' pay in respect of each complete calendar month served in the colony. Free passage to and from the colony and free rations will be provided. Applications to be addressed to the Assistant Private Secretary, Colonial Office, London.

CORNWALL COUNTY ASYLUM, Bodmin.—Junior Assistant Medical Officer, unmarried. Salary £120, rising to £150 by £10 annually, with board, furnished apartments, &c.

CROYDON GENERAL HOSPITAL.—House Surgeon for one year, unmarried. Salary £105, with board, lodging, and washing at the hospital.

DERBYSHIRE ROYAL INFIRMARY, Derby.—Honorary Physician and Honorary Surgeon.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—House Physician. Board, residence, &c., provided and an honorarium of £25 given conditionally.

GRIMSBY AND DISTRICT HOSPITAL, Great Grimsby.—Resident House Surgeon. Salary £80 per annum board, lodging, and washing.

HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £80 per annum, with board, and lodging in the institution.

HOLLOWAY SANATORIUM HOSPITAL FOR THE INSANE, Virginia Water, Surrey.—Junior Assistant Medical Officer for the male side. Salary £150 per annum, rising to £200, with board, lodging, washing, and attendance.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London.—Resident Medical Superintendent for one year. Salary 100 guineas, with board and residence in the Hospital.

HULL ROYAL INFIRMARY.—Honorary Surgeon.

KENT AND CANTERBURY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 a year, with board and lodging.

KIDDERMINSTER INFIRMARY AND CHILDREN'S HOSPITAL.—House Surgeon, unmarried. Salary £140 per annum, rising £10 per annum to £170, with rooms in the Infirmary and attendance (option of board at £40 per annum).

KING'S COLLEGE, London.—Professor of Anatomy.

LONDON HOSPITAL, Whitechapel, E.—Medical Registrar. Salary £100 per annum.

MANCHESTER CHILDREN'S HOSPITAL, Gartside-street, Manchester.—Assistant Surgeon. An honorarium of £50 per annum will be given.

MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer for the Convalescent Hospital at Cheadle, for twelve months, unmarried. Salary £150, with board and residence.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, London.—House Surgeon for six months. Salary at the rate of £80 per annum, with board, residence, and laundry allowances. Apply to the Secretary, City Office, 27, Clement's-lane, Lombard-street, E.C.

NORTH-WEST LONDON HOSPITAL, Kentish Town-road.—Assistant Surgeon. Also Resident Medical Officer and Assistant Resident Medical Officer for six months. Salary at the rate of £50 per annum, with board, residence, and washing.

NORTH LONDON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Junior Resident Medical Officer for twelve months. Honorarium £60. Also, Clinical Assistant for the Central Out-patients' Department for six months. Honorarium at the rate of £35 per annum. Apply to the Secretary, Offices, 41, Fitzroy-square, W.

NOTTINGHAM CITY ASYLUM.—Senior Assistant Medical Officer, unmarried. Salary £200 a year, with board, apartments, and washing.

RAMSGATE AND ST. LAWRENCE ROYAL DISPENSARY AND THE GENERAL HOSPITAL AND SEAMEN'S INFIRMARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with furnished apartments, board, and attendance.

ROYAL ALBERT HOSPITAL, Devonport.—Assistant House Surgeon for six months. Salary at the rate of £50 per annum, with board, lodging, and washing.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Examiner.

ROYAL HOSPITAL FOR CHILDREN AND WOMEN, Waterloo-bridge-road, London.—Resident Medical Officer for twelve months. Salary £70, with board and laundry.

ROYAL SOUTHERN HOSPITAL, Liverpool.—Junior House Surgeon (third). Salary 60 guineas per annum, with board, residence, and washing.

ST. MARY'S HOSPITAL FOR SICK CHILDREN, Plaistow, E.—Assistant Resident Medical Officer for six months. Salary £80 per annum, with board, residence, laundry, &c.

ST. MARY'S HOSPITAL MEDICAL SCHOOL, Paddington.—Lectureship in Chemistry and Physics. Salary £150 per annum, with extra fees for London University Classes.

ST. THOMAS'S HOSPITAL, Westminster-bridge.—Surgeon. Also Resident Assistant Surgeon.

SUSSEX COUNTY HOSPITAL, Brighton.—Resident Pathologist. Salary £70 per annum, with board and residence.

WANDSWORTH AND CLAPHAM UNION.—Assistant Medical Officer for the Annexes now being erected at the Home for the Aged and Infirm, Church-lane, Tooting, unmarried. Salary £100 per annum, rising £5 annually to £120 per annum, with apartments, board, lodging, and washing. Apply to the Clerk, Union Offices, St. John's-hill, S.W.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Junior House Surgeon, unmarried. Salary £75 per annum, with board and residence.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £110 a year, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

ENSOR.—On Nov. 2nd, at Tisbury House, Tisbury, Salisbury, the wife of Cecil Arthur Ensor, M.R.C.S., L.R.C.P.—a daughter, prematurely.

GRIFFITH.—On Nov. 6th, at Tanyromen, Portmadoc, N. Wales, the wife of Harry R. Griffith, M.D., of a son.

MARRIAGES.

SCOTT—PEEL.—On Nov. 8th, at the Brompton Oratory, William John Scott, L.K.Q.C.P.I., of Hurstpierpoint, Sussex, to Julia Rose Steers Peel, of Laregon, Gloucestershire.

WINTER—WITHERBY.—On Nov. 7th, at All Saints. Church, Chilvers Coton, Nuneaton, John Newnham Winter, M.R.C.S. of Montpellier-road, Brighton, to Amy Florence, eldest daughter of Josiah Witherby, of King's-avenue, Ealing, Middlesex.

DEATHS.

BLACKWELL.—On the 8th Nov., at his residence, "Inverary," Westcliff-on-Sea, Frederick William Blackwell, L.R.C.P.E., L.R.C.S.E., aged 49 years.

CORDWENT.—On Nov. 12th, at Milverton, Somerset, George Cordwent, M.D. St. And., F.R.C.S. Eng., aged 85 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

"A MEMORIAL TO THE GENERAL MEDICAL COUNCIL FROM THE MIDDLESBROUGH AND DISTRICT MEDICAL SOCIETY."

To the Editors of THE LANCET.

SIRS,—I notice in THE LANCET of Nov. 10th (p. 1395) a letter from the honorary secretary of the Middlesbrough and District Medical Society in which he calls attention to a test case which is being presented to the General Medical Council on the question of the association of medical men with medical aid societies which canvass. The result of this memorial, as you remark, will be watched with interest by the medical profession. It is important in view of the extent to which touting in connexion with clubs and insurance societies prevails to have some authoritative expression of opinion from the General Medical Council and to know whether their resolution of last June is merely the record of a "pious opinion" or whether their declaration of conduct being unprofessional is likely to be followed by penal consequences where it is proved to exist. In the town in which I practise this system of canvassing is in full operation. One medical firm has a large private family club, the agents for which are the canvassers for one of the largest industrial insurance companies. This insurance company, I believe, has no knowledge of, or interest in, this part of the work of its agents as it does not supply medical aid and I daresay the medical firm in question would repudiate the idea that these agents canvass for them, but the fact remains that these agents, who canvass the whole town in the interests of the insurance company, are also the agents for the private club of this firm, and it is quite certain that they canvass and do their best for both their employers. Their usual plan is to call upon a family to get them to insure and then to ask them if they will also join Dr. So-and-So's sick club at 1½*d.* per week. As they get a large percentage on the receipts it is manifestly to their advantage to get all the patients into their net which is possible. Thus it happens that the patients of other medical men are constantly being solicited and many complaints are heard. What is the remedy for this abuse? The mere statement that it is unprofessional by the General Medical Council can have no effect if it be merely a "pious opinion." If it be pronounced "infamous conduct in a professional respect" it will without doubt have the effect of remedying a great abuse and of raising the standard of medical practice generally. I call attention to the practice of employing collectors to canvass for members for private family clubs because it does not appear to me to be completely covered by the resolution of the General Medical Council of last June. It might be urged that a medical man has a right to have a private club and to employ a collector to go round once a week to collect the fees and that this does not constitute touting. But where an agent is paid by results I do not see how canvassing can be avoided. At any rate, the system is so liable to abuse that I am of opinion it ought to be dealt with. In the particular instance which I have mentioned the agency is more complete than that which any medical man himself could organise, as the town is divided into districts by the insurance company and the canvassing is necessarily most exhaustive. The firm in question, however, might seek to evade the condemnatory resolution of the General Medical Council by saying that these insurance agents were merely their private collectors and that they had no knowledge of their canvassing. I feel very strongly, therefore, that if this question comes up for consideration by the General Medical Council and any action is taken it should forbid the employment of collectors for private family clubs, and above all, the employment of the agents of an insurance company or of any other organisation for this purpose.—I am, Sirs, yours faithfully,

Nov. 12th, 1900. A SUFFERING PRACTITIONER.

THE CASE OF MR. JOSEPH HENDERSON MARTIN.

To the Editors of THE LANCET.

SIRS,—The following subscriptions have been received by Dr. W. M. Renton and myself in response to the appeal for help for the family of Mr. J. H. Martin, M.R.C.S. Eng., L.S.A., which appeared in THE LANCET of Nov. 10th. I am, Sirs, yours faithfully,

Chester-le-Street, Nov. 14th, 1900. H. LYON SMITH.

	£	*s.*	*d.*
"A Sympathiser," Northampton	0	10	0
Dr. John Robert Williams, Penmaenmawr	1	1	0
Mr. Charles Terry	2	2	0
Mrs. John Robert Williams, Penmaenmawr	1	1	0
Mr. Philip Moysey Jones	0	10	6

VARIX.

To the Editors of THE LANCET.

SIRS,—Could you or any of your readers oblige me by giving me the names of any recent book or writing on varix, especially varicose veins of the legs? I am, Sirs, yours faithfully,

Nov. 11th, 1900. LEX.

AN ETHICAL POINT.

To the Editors of THE LANCET.

SIRS,—I should be pleased if you could give me your opinion on the following case. Dr. X died in September, 1897, leaving a widow and no successor to the practice. Since his death up to the present time the widow has engaged six medical men, each of whom has worked the practice for various periods, the widow receiving a certain percentage of the receipts. During her husband's lifetime she was in the habit of occasionally vaccinating children, dispensing and dressing wounds in the surgery, and has done this more or less up to the present time. Dr. A now comes forward and offers to buy the practice, including the drugs, fixtures, &c., on condition that she absolutely refrains from doing any medical work whatever, her only position being that of housekeeper. All this is incorporated in a legal agreement. 1. Could Dr. A's conduct be construed so as to constitute covering? 2. Is Dr. A behaving professionally by keeping the widow as housekeeper?

I am, Sirs, yours faithfully,

Nov. 13th, 1900. QUANTUM SUFFICIT.

*** Dr. A places himself in a position which is liable to misconstruction, but if he does not act unprofessionally he has nothing to fear.—ED. L.

THE LATE DR. PATRICK QUINLIVAN.

WE gladly publish the following appeal which is being circulated on behalf of the family of the late Dr. Patrick Quinlivan of 254, Bethnal-green-road. The committee, according to the printed appeal, consists of the following gentlemen: "H. Macnaughton Jones, M.D., F.R.C.S.I.; Frederick J. Smith, M.D., F.R.C.P.; P. J. Freyer, M.D., M.Ch.; Dr. Rogers, Dr. O'Dwyer, Dr. Daly, Dr. Ambrose, Dr. O'Malley, Dr. Cahill, Dr. Sheehan, Mr. Winter. Honorary treasurer, Dr. R. Ambrose, M.P., The Mount, Whitechapel-road, E." The appeal runs as follows:—

DEAR SIR,—We beg to bring before your notice this appeal as being one well deserving of your sympathy. Dr. Quinlivan died at the age of 36 years—unexpectedly—from an attack of acute pneumonia, leaving a widow and a family of seven children—whose ages range from nine months to 13 years—unprovided for. The committee confidently appeal to you to aid them in purchasing a small business by which the widow may support herself and her family. Yours faithfully,

150, Bethnal-green-road, N.E. R. MOYNAHAN, Hon. Sec.

Subscriptions to the amount of £41 16*s.* have already been received we shall publish the names of subscribers next week.

TOMATOES AND CANCER.

To the Editors of THE LANCET.

SIRS,—I have latterly been often asked by patients if I believed in the theory that tomatoes as a food were a fruitful source of cancer. They assert that eminent men have declared them to be so. I have never until recently heard of the theory. Would you be good enough to enlighten me? I am, Sirs, yours faithfully,

Nov. 13th, 1900. H. W.

*** There is no truth whatsoever in the idea.—ED. L.

MANURE AND MUNICIPALITIES.

WE have received a card bearing the following legend from a Brighton correspondent:—

Friday, 9th November, 1900.

The Poor of Aldrington respectfully invite

THE MAYOR AND CORPORATION OF HOVE

TO VISIT TO-DAY:

The overflowing Cesspool near the Portland-road Board School.

The Dust Heap opposite.

And the Outfall Sewer at low tide.

They will then understand why the death-rate of children in Aldrington is nearly three times that of Hove.

And why poor people think their sanitation should be attended to before rich people's circular drives.

We shall be interested to know whether his worship accepted the invitation. Possibly he and the corporation are of the same opinion as was the Corporation of London in the days when *Mr. Punch* drew the members of that august body sitting in Smithfield, exclaiming: "How delicious the drains smell this morning," while their children played with little pails and spades among the dung.

PRURITUS ANI.

To the Editors of THE LANCET.

SIRS,—"Perplexed's" patient would find great benefit and relief in pruritus ani and scroti, as well as in tinea sycosis, by the free rubbing on of Calvert's Carbolic Soft Soap every night, which should be allowed to remain on an hour and then washed off.

I am, Sirs, yours faithfully,

GEO. ARNISON, M.R.C.S. Eng.

Allendale Town, Northumberland, Nov. 10th, 1900.

"ADHESIVE PLASTER FOR PUNCTURED TYRES."

To the Editors of THE LANCET.

SIRS,—In reply to "Cyclist" in THE LANCET of Oct. 27th, p. 1249, I may say that I have tried the various "rubber adhesive plasters" in the market for repairing punctures, but they all proved unsatisfactory when applied to the air tube. Such plasters, however, are invaluable for temporary repairs of the tyre cover and can be applied inside or a strip long enough to be gripped by the rim on both sides may be applied externally over a gash or unusually large hole.

I am, Sirs, yours faithfully,

Oct. 27th, 1900. A. S. G.

ORCHITIC EXTRACT.

To the Editors of THE LANCET.

SIRS,—I should be glad of any information on the following points. 1. Are there any dangers to be apprehended in the administration of orchitic substance (didymin) by mouth and rectum? 2. Can you advise me of any literature on the subject of the therapeutics of the administration of orchitic substance?

I am, Sirs, yours faithfully,

Nov. 9th, 1900. PROSTATE.

**** 1. No dangerous symptoms have ever been described as resulting from the administration of this substance. 2. We know of no summary of the therapeutics of orchitic substance, but the following papers may be referred to: THE LANCET, vol. ii., 1889, p. 105; THE LANCET, vol. i., 1893, p. 1357; *London Medical Record*, 1890, p. 209; *London Medical Record*, 1891, p. 165; *British Medical Journal*, vol. i., 1893, p. 1212; THE LANCET, vol. i., 1891, p. 1291; *Medical Press and Circular*, vol. ii., 1892, p. 455.—ED. L.

"TOBACCO HEART."

To the Editors of THE LANCET.

SIRS,—Will you kindly direct me through the medium of your columns to any existing literature on the subject of "Tobacco Heart"?

I am, Sirs, yours faithfully,

Nov. 13th, 1900. B. B. G.

**** Our correspondent will find numerous references in Neale's Digest. —ED. L.

SMOKING IN EPILEPSY.

To the Editors of THE LANCET.

SIRS,—Can you tell me whether moderate smoking is supposed to be injurious in epilepsy as I cannot find it referred to in the text-books I have at my command? I am, Sirs, yours faithfully,

Nov. 13th, 1900. EPILEPSY.

**** We do not remember having heard this question raised before. Moderate smoking is a term difficult to define; it is, however, possible that the amount of tobacco which would do no injury to a person in perfect health might be inadvisable for one in the unstable nervous condition of an epileptic.—ED. L.

NERVE STRETCHING.

To the Editors of THE LANCET.

SIRS,—Will you kindly inform me where I can find details of the technique of stretching the sciatic nerve by extension and flexion of the limb? I thought I had seen an article upon the subject in a recent number of THE LANCET but have been unable to find it. Thanking you in anticipation, I am, Sirs, yours faithfully,

Nov. 10th, 1900. SPES.

**** The "bloodless" method of stretching the sciatic nerve is performed as follows: The patient lies on his back and the surgeon extends the knee-joint and then flexes the hip forcibly. An anæsthetic is only needed if much force is used.—ED. L.

HOMES FOR EPILEPTICS.

To the Editors of THE LANCET.

SIRS,—I should be obliged if you or any of your readers could inform me of an institution that would take charge of a girl suffering from epilepsy. The parents could only afford to pay about 5*s.* or 6*s.* a week. I am, Sirs, yours faithfully,

Nov. 13th, 1900. W. H. C.

**** Our correspondent might apply to the Meath Home of Comfort, Westbrook, Godalming, Surrey. There is also the epileptic colony at Chalfont St. Peter, the London offices of which are at 12, Buckingham-street, Strand, W.C.—ED. L.

THE PROPERTY IN A PRESCRIPTION.

To the Editors of THE LANCET.

SIRS,—Will you kindly let me know through the columns of THE LANCET who is the *legal* owner of medical prescriptions given to a patient on payment of a fee for consultation? Can you refer me to any recorded legal decision on the question?

I am, Sirs, yours faithfully,

Nov. 4th, 1900. L. K.

**** "L. K." is not sufficiently explicit for us to be able to give him an altogether satisfactory answer. The "legal owner of medical prescriptions given to a patient on payment of a fee for consultation" is presumably the patient so far as ownership of the piece of paper containing the prescription is concerned. Ownership of a piece of paper does not, however, necessarily imply an unqualified right in such owner to deal as he pleases with its written contents, as, for example, to multiply copies of them. We are not, however, aware of any decision limiting the rights of ownership in the contents of a written document and dealing directly with a prescription.—ED. L.

BOOKS ON SURGERY.

N. A. B.—The following works may be referred to:—"Manual of Surgery for Students," by W. Rose, F.R.C.S. Eng., and Albert Carless, F.R.C.S. Eng., pp. 1160 and 400 illustrations, price 21*s.* London: Baillière, Tindall, and Cox. "Student's Handbook on Surgical Operations," by F. Treves, F.R.C.S. Eng., 94 illustrations, price 7*s.* 6*d.* London: Cassell and Co. "The Operations of Surgery," by W. H. A. Jacobson, F.R.C.S. Eng., third edition, price 34*s.* London: J. and A. Churchill. "Surgical Handicraft, a Manual of Surgical Manipulations and Minor Surgery," by Walter Pye, F.R.C.S. Eng.; revised and edited by T. H. R. Crowle, F.R.C.S. Eng., third edition, 1891, with 235 engravings, price 10*s.* 6*d.* Bristol: John Wright and Co. "A Manual of Surgical Treatment," by W. Watson Cheyne, F.R.C.S. Eng., and F. F. Burghard, F.R.C.S. Eng., to be completed in six parts. London: Longmans, Green, and Co. Only the first three volumes have yet been published.

THE EXAMINATION FOR F.F.P.S. GLASGOW.

G.P. would be glad to hear from someone who has recently been a competitor particulars regarding the examination for F.F.P.S. Glasgow—(1) if the examination is very stiff; (2) if any special text-books are recommended; and (3) as to the chance of a man in busy practice, who has not a great deal of time for reading and who is not in touch with any hospital, obtaining the qualification.

WE have had this week to vary the noms-de-plume of several of our correspondents who have used the same signature to their communications.

Enquirer.—There is no difference in value between the qualifications, in that each combination entitles a man to be placed on the Register, showing that he has attained to the standard required by the General Council of Medical Education. A Licentiate of the Royal College of Surgeons of Edinburgh is not correct in placing the prefix "Dr." before his name.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Nov. 15th, 1900.

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rain-fall	Solar Radiation. Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8 P.M.
Nov. 9	29·67	S.W.	0·01	82	56	44	50	54	Cloudy
,, 10	29·67	W.	...	76	50	40	39	41	Fine
,, 11	29·74	N.W.	...	60	46	32	32	35	Hazy
,, 12	29·85	SSW	...	60	56	35	42	44	Raining
,, 13	29·54	S.W.	0·16	63	57	44	56	56	Overcast
,, 14	29·58	S.	0·11	64	53	45	46	47	Cloudy
,, 15	29·48	S.	0·09	53	50	43	46	47	Raining

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

WEDNESDAY (21st).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.).

THURSDAY (22nd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

FRIDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

SATURDAY (24th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (20th).—PATHOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—Dr. S. H. Habershon and Dr. P. S. Hichens: A Case of Pseudo-Actinomycosis.—Mr. W. G. Spencer: (1) Fibroma of Tongue; (2) Spheroidal-celled Carcinoma commencing in Supernumerary Nipples.—Dr. W. Hunter: A Case of Acute Yellow Atrophy. Card Specimen: Mr. T. W. P. Lawrence: Hour-glass Contraction of Stomach.

CHELSEA CLINICAL SOCIETY (Holy Trinity Parish Hall, Pavilion-road, Sloane-square, S.W.).—8.30 P.M. Paper:—Mr. N. Smith: The Conservative Treatment of Tubercular Disease of Joints (with demonstration).

WEDNESDAY (21st).—ROYAL MICROSCOPICAL SOCIETY (20, Hanover-square, W.).—7.30 P.M. Exhibition of Slides illustrating the Structure of Shells.

SOCIETY OF ARTS.—8 P.M. Ordinary Meeting. Opening Address:—Sir John Evans.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND (11, Chandos-street, Cavendish-square, W.).—4 P.M. Papers:—Sir Dyce Duckworth: On Mental Disorders dependent on Toxæmia.—Dr. G. H. Savage: Travel, its Use and Abuse in the Treatment of Mental Diseases.—Dr. L. Jones: The Application of Electricity in certain forms of Mental Disease (illustrated with instruments and electrical appliances).

ROYAL METEOROLOGICAL SOCIETY (Institute of Civil Engineers, Gt. George-street, Westminster, S.W.).—7.30 P.M. Ordinary Meeting. Papers:—Mr. R. H. Curtis: An Improved Mounting for the Lens and Bowl of the Campbell-Stokes Sunshine Recorder.—Mr. W. H. Dines: Weekly Death-rate and Temperature Curves, 1890-1899.—Mr. H. Mellish: Seasonal Rainfall of the British Islands.

FRIDAY (23rd).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Papers:—Dr. S. Phillips: A Case of Thrombosis of the Inferior Vena Cava and of the Iliac and Femoral Veins of Acute Onset and Fatal Termination, with symptoms resembling those of Perforated Gastric Ulcer.—Mr. C. Williams: A Case of late Syphilitic Pyrexia.—Mr. Bland-Sutton: On a Case in which Splenectomy was performed for a Wandering Spleen.—Dr. W. P. Herringham: A Case of Nephritis without Albuminuria; Death in Six Weeks; no Scarlet Fever; Necropsy.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (19th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. F. Payne: Consultation. (Skin.)

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Dr. S. Taylor: Surface Anatomy.

TUESDAY (20th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. S. J. Sharkey: Consultation. (Medical.)

THE HOSPITAL FOR DISEASES OF THE SKIN (Stamford-street, Blackfriars).—5 P.M. Clinical Lecture:—Dr. F. S. Abraham: Psoriasis.

WEDNESDAY (21st).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—5 P.M. Clinical Lecture:—Mr. J. Cantlie: Plague.

LONDON THROAT HOSPITAL (204, Gt. Portland-street, W.).—5 P.M. Dr. F. Potter: Selected Cases. (Post-graduate Course.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Latham: Phthisis in Early Childhood.

THURSDAY (22nd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—3 P.M. Dr. H. Low: Class. Practical Application of Roentgen Rays. 4 P.M. Mr. J. Hutchinson: Consultation. (Surgical.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Mr. Wallace: Pathological Demonstration.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL (Gray's Inn-road, W.C.).—8 P.M. Clinical Evening. Dr. P. Jakins: Demonstration of Cases of Diseases of the Throat and Nose.

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Mr. C. B. Keetley: General Treatment of Wounds and of Compound Fractures.

FRIDAY (23rd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. H. Spicer: Consultation. (Eye.)

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

***Lectures, original articles, and reports should be written on one side of the paper only*, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.**

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

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The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied, Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

During the week marked copies of the following newspapers have been received: *Swinton Times, Normanton Herald, Dewsbury Reporter, Gloucester Journal, Derbyshire Times, Newcastle Journal, Lynn Advertiser, Southern Times, Bradford Observer, Indian Daily Telegraph (Lucknow), Times of India, Pioneer Mail, Alliance News, Builder, Architect, Sheffield Daily Telegraph, Staffordshire Advertiser, Dundee Advertiser, Scotsman, Citizen, Manchester Guardian, Glasgow Herald, Oldbury Weekly News, Lancaster Post, Glasgow Herald, Leicester Mercury, Birmingham Gazette, Rushden Argus, Oxford Journal, Hyde Reporter, Liverpool Daily Post, Evesham News, Kendal Times, Wolverhampton News, Bristol Mercury, Cardiff Times, Shields News, Leeds Mercury, Halifax Courier, Yorkshire Post, Thames Valley Times, Mining Journal, Westminster Gazette, Reading Mercury, City Press, Hertfordshire Mercury, Sanitary Record, Church Weekly, Cornish Post, Vectis, South London Mail, Chemist and Druggist, Bristol Times and Mirror, Surrey Advertiser, Local Government Journal, Lincolnshire Echo, Lincolnshire Chronicle, Halstead Gazette, South Shields Free Press, Express, Sun, Bath Argus, Daily Mail, Reynolds's Newspaper, Free Lance, Leighton Buzzard Reporter, &c., &c.*

Communications, Letters, &c., have been received from—

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Letters, each with enclosure, are also acknowledged from—

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